

THE DOCK & HARBOUR AUTHORITY

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Editorial.

The Port of London.

The Port of London and its present-day activities are common knowledge, but the history of its commencement is probably more obscured.

The earliest tracing of London as a port was in A.D. 61 and the next reference was made to it in the year 457. From this year it can be traced through the ages very frequently up to the year 1600 when London had become the commercial centre of the world. At this time the trade of the port was increasing at a tremendous pace and London contributed one-half of the total Customs revenue of the country.

In 1802, the West India Dock was opened and this proved to be the commencement of many more similar docks which were opened at various intervals afterwards.

Although the Port of London itself dates back such a considerable time, the Port of London Authority is comparatively young as it was formed in the year 1908, since which time, developments on a great scale have taken place in the port. When the Authority was formed, improvements to the river were taken in hand and also improvements to the docks, and their completion involved an expenditure of approximately £20,000,000.

The most recent undertaking in the port was the opening of the Tilbury Dock, which since its inception has amply proved the justification of the Port of London Authority in its construction.

The docks in the Port of London, are, for administrative purposes, divided into five groups and these are the London and St. Katherine Docks, the East and West India and Millwall Docks, the Royal Victoria, Albert and King George V. Docks, the Surrey Commercial Docks and Tilbury Docks.

These docks collectively cover a vast area of water and details of their various sizes and the various purposes for which they are utilised are given in an illustrated article which appears on another page and the Port of London also forms the supplement for this month.

An illustrated article describing the history of the port from its early beginning appeared in "The Dock and Harbour Authority" for December, 1931.

Large Traffic at Ayr Harbour.

It is gratifying to report that during the past few weeks of the year traffic at Ayr Harbour was almost abnormally large, and there is every indication that this state of affairs will continue for some time ahead. It may be added that work at the new electric coal conveyor being installed at the dock has been going on apace, and there is every indication that it will be in operation early in the New Year. The erection of this conveyor (which is of the fixed type and after the pattern of that at present in use at Glasgow Terminus) is only the first part of the scheme of improvement which the authorities contemplate carrying into effect within the New Year. The whole development involves the erection of a second conveyor (which will be moveable) at the north end of the dock, and another on the harbour itself. When that scheme is finished Ayr Harbour will be as up-to-date as it is possible to be.

Reorganisation of the Port of Hamburg Administration.

For a number of years past the Government of Hamburg planned to simplify the administration of the Port. These plans have now been carried into actual practice, a resolution recently passed by the Senate giving effect to the new arrangement. As early as last spring the River and Harbour Construction Department was affiliated to the Committee of Trade, Shipping and Industries. Effective September 15th, 1931, all those Governments which are in some way or other connected with harbour construction or port operation have now been

combined to form a special department (Department II.; Harbour Matters) of the Committee just named. Dr. Ing. Lohmeyer, Oberbaudirektor, has been appointed its head. He is in charge of the following sections:—

(1) River and Harbour Construction Section (hydraulic engineering, dykes, water gauges, soundings, light fires, ice-breakers, construction and upkeep of harbour facilities, the Port of Hamburg Railway and the engine plant, ships' measurement).

(2) Pier Administration Section (operation of the piers and the Port of Hamburg Railway, publicity, leased properties).

(3) Port Captain's Office (regulation of harbour traffic, ships' berths, pilotage, signalling).

(4) Administrative Section (finances, shipping laws applicable to the port, dues and port charges, legal questions).

Through these changes a uniformly organised administration has been created; and it is beyond doubt that the close collaboration between the technical departments and the harbour-operating services, under one management, will still further benefit traffic in the Port of Hamburg.

Progress in the Port of Manchester.

Important works put in hand at the Port of Manchester are a new oil dock at Stanlow and a new wharf and lay-by at Irlam. Stanlow, at the western end of the Ship Canal, $4\frac{1}{2}$ miles above its entrance at Eastham, is the point at which the Port of Manchester handles the petroleum spirit traffic. Since the opening here of an oil dock in 1922 the development of traffic has grown to dimensions which constitute the port the second most important centre in the kingdom for the importation and storage of petroleum. The installations of the oil companies, which have a total storage capacity approaching 70,000,000 gallons, are grouped on the south bank of the Canal, while the docks, one in being and the other under construction, lie on the north of the waterway. Tankers are discharged by means of pipes running in a subway beneath the Canal; a pipe manifold on the south side permitting the delivery of spirit to individual installations. The original dock embodies many fire precaution devices, including a floating boom which encloses the dock while the vessels within are being discharged. Similar precautions are being applied to the new works.

The second dock, which was begun earlier in the year, and which work is progressing rapidly, lies alongside the original dock at an oblique angle to the line of the Canal. The widened entrance serving both docks will form a turning basin for the increasing number of vessels using this section of the Canal. The new dock, 650-ft. long and 180-ft. wide, with 30-ft. depth of water, will accommodate two large ocean-going oil tankers.

The new wharf and lay-by at Irlam is designed to provide waterside facilities for the works of the Lancashire Steel Corporation. It will be equipped with railway connections and the most modern appliances for the rapid handling of iron ore; 600-ft. in length, it will have 28-ft. of water alongside. The work is well advanced.

Work carried out by the Manchester Ship Canal Co. during the year includes the replacement of the timber bridge carrying the Canal Company's railway over an arm of the canal at Boysnope by a new structure in reinforced concrete; the replacement of the upper levels of the Runcorn lay-by for the Bridgewater Department; a new slipway at Runcorn for the repair of lock gates and the extension of quayside sheds at Pomona Docks.

Port of Southampton Topics

The Year's Review.

SOUTHAMPTON, in common with other ports, was not sorry to bid farewell to 1931, for although it has not suffered to anything like the same extent as those relying entirely on the freight market, the effect of the general economic situation of the world has been to depress passenger business, and in that Southampton is pre-eminent.

With the New Year there will come a spirit of hopefulness for better business, but there does not as yet seem much justification for undue optimism in regard to passenger movements. There are, however, certain features about 1932 which will render it notable in the port.

The most important feature will be the completion of the first berth to be provided by the great scheme of dock extension on the Western Shore, the present work on which entails an outlay of £8,000,000. The berth will be 1,000-ft. long, replete with the most up-to-date passenger and cargo shed, and will be fronted by water of a depth of 45-ft. l.w.o.s.t. It will be approached by a continuance of the port's main deep water channel, which has a depth of 35-ft. l.w.o.s.t. It is the present expectation of the engineers working on this great enterprise that this initial big ship berth will be ready about the middle of the summer, and it can be confidently stated that the other accommodation to be provided by the first section of the scheme—3,800-ft. in all—will, by the end of 1932, have approached a stage nearing completion. The work on the second section of providing a further 3,500-ft. of deep water quay wall will by that time have also made marked progress, and unless any new decision consequent upon the suspended construction of the new Cunarder is taken in regard to the 1,200-ft. graving dock being built at Millbrook, that, too, will be making great headway.

There will be a few new vessels to welcome in 1932, although not so many as in the years of the boom period. Foremost in importance will be the United States Lines new liner "Manhattan," at present under construction in America. This vessel will be of 30,000 tons, and is expected to enter service with the company's flagship "Leviathan" about the middle of the year. Later, possibly before 1932 has drawn to a close, a sister craft, as yet unnamed, may also have made her appearance.

Another new vessel which is due is the "Carthage," which has just been completed for the P. and O. Company. This fine ship (14,500 tons) will come right at the beginning of the year, for she is due to begin her maiden voyage from Southampton to Yokohama on the London-China-Japan service on January 9th. From that time she will be assisting on that run her sister vessel "Corfu," which is now returning from her initial trip.

A few days afterwards another new vessel will be making her entrance into Southampton, namely, the Southern Railway Company's steamer "Isle of Sark," which will run with her sister craft "Isle of Jersey" and "Isle of Guernsey" on the Channel Islands service. This vessel is the first British-built ship to be fitted with a Maierform bow. During the height of the holiday season in the summer the Southern Railway Company will open their service between Southampton and Cherbourg, which was suspended four or five years ago, and supplanted by a service to Caen. The Caen service will now be dropped.

As far as work in the shipyards is concerned, there is no promise of much activity, and unless new orders are obtained most of them will be quiet. Messrs. John I. Thornycroft and Co., Ltd., will be launching the British destroyers "Decoy" and "Daring," but apart from work on these ships there is nothing of magnitude on the constructional side to engage the local yards.

Bad Year on North Atlantic Passenger Services.

That 1931 has been one of the worst years in the history of North Atlantic travel is borne out by official figures, and Southampton, as the chief port in Great Britain for the United States traffic, has felt the slump severely. The shipping companies are hoping that business will take a turn for the better in 1932, but up to the moment there have not been very encouraging reports upon which to base such hopes.

From January 1st to November 30th, 1931, the number of West bound passengers carried in all vessels trading across the North Atlantic dropped by 240,000, the total only reaching about 300,000, as compared with 540,000 during the first eleven months of the previous year. The decrease is staggering, for a drop of nearly a quarter of a million passengers West bound must represent at a modest estimate something approaching £7,250,000 in fares.

No figures covering the same period have yet been issued in relation to the East bound traffic, but they are also certain to show a decline. It may therefore be assumed that the big shipping companies on the North Atlantic have lost this year somewhere in the region of £10,000,000 of revenue in com-

parison with 1930. In view of this there is little wonder that the principal lines are carrying through a vigorous policy of retrenchment.

The approximate number of passengers carried in all classes by all vessels trading West bound across the Western Ocean during the eleven months under review were:—

Class	1930	1931	Decrease
1st Class	71,000	53,000	18,000
Cabin	80,000	47,000	33,000
2nd Class	39,600	19,000	20,000
Tourist	133,000	95,000	38,000
3rd Class	216,000	86,000	130,000

The above figures show that the decline in travel was not confined to any particular class of passenger. One of the most striking features of the returns is the fact that second-class travel is now fast fading from popularity, the decrease of 20,000 in comparison with 1930 being in excess of the actual number of second-class travellers carried West bound during the first eleven months of the year.

The tourist business declined sharply, but the falling away in this instance is due to the general desire of the public to conserve their savings, and is certainly no proof of failing popularity in that particular grade of travel. As a matter of fact, the tourist accommodation is easily the most popular on the North Atlantic at the present time, a very striking fact when it is considered that it was only in 1926 that it first came into being.

Another remarkable fact about the returns is that they show that only 86,000 third-class passengers crossed to the United States or Canada, as compared with 216,000 in 1930. This tremendous drop is accounted for by the fact that the doors of both the United States and Canada are now practically barred to emigrants.

The total decrease in passengers carried West bound by three British companies amounted to 67,000, 37,000 and 32,000 respectively. British vessels have been the most hardly hit, as the following comparisons of the total West Bound carryings of British, Continental and Scandinavian lines will show:—

	1930	1931	Decrease
British	271,000	132,000	139,000
Continental	232,000	150,000	82,000
Scandinavian	36,000	18,000	18,000

Dock Statistics for November continue to show Decreases.

Although the number of vessels both inward and outward increased, Southampton Dock statistics for November again showed decreases. There were 238 vessels entering the port, compared with 230 in the corresponding period last year, and 237 left, compared with 231.

The gross tonnage returns, however, dropped from 1,164,577 tons to 1,068,727 tons inward, a decline of 95,850 tons, and from 1,190,391 tons to 1,044,671 tons outward, a reduction of 145,720 tons. The net tonnage figures also showed a substantial decrease, the inward total dropping from 613,706 tons to 581,368 tons, and the outward total from 633,793 tons to 559,547 tons.

In contrast with recent months the amount of cargo handled at the port during the month showed an increase, for while there were 7,087 tons less in exports, there was an increase of 11,699 tons in imports.

The total cargo inward was 52,716 tons, as against 41,017 tons, which suggests that a certain amount of extra cargo was brought in prior to the imposition of the abnormal import duties. Outward the figure was 29,630 tons, as compared with 36,717 tons a year ago.

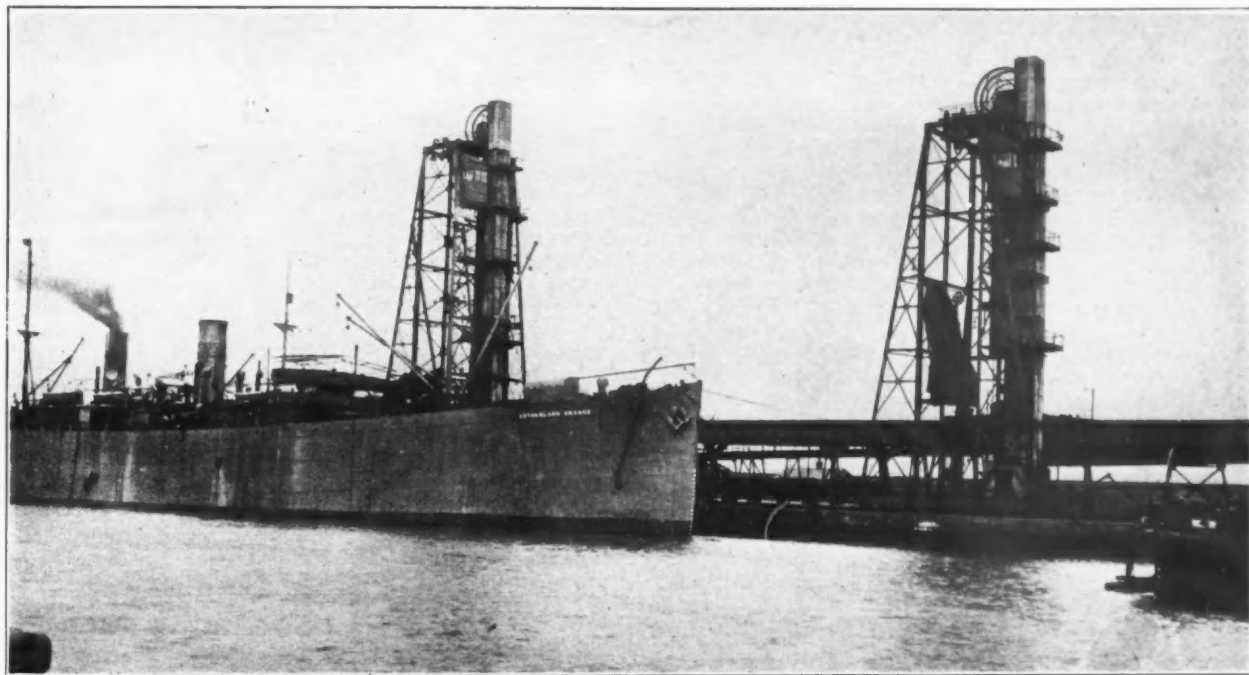
There was again a big decrease in passenger traffic. The inward figure dropped from 7,220 to 5,851, and the outward from 9,139 to 7,422. In troop movements there was also a decline, the inward total falling from 3,265 to 3,242, and the outward from 3,208 to 3,188.

Quick Discharge at Grangemouth

The s.s. "The Countess," from the Thames, arrived at Grangemouth at 4.30 p.m. on December 2nd with 1,000 tons cement clinkers. She was berthed at 5 p.m. and commenced discharge at 6 p.m. with electric luffing cranes fitted with grabs, installed during recent years by the L.M.S. in connection with the modernisation of their craneage equipment at the port. The vessel completed her discharge at 10 p.m. and sailed at 11.19 p.m. the same day, after a period of only 6 hrs. 49 mins. at the port.

The London, Midland and Scottish Railway Company are the harbour authority for Grangemouth and are owners of the docks.

Hull and the Humber



Coal Hoists at the L. & N.E. Rly. Co's. King George Dock, Hull.

Future of the Humber Bridge Bill.

THE consideration of the future of the Humber Bridge Bill, promoted by the Hull Corporation for the purpose of constructing a road bridge over the River Humber from Hull to North Lincolnshire, has been deferred until after Easter. The Bill has already passed through all its stages in the House of Commons and is waiting to be heard by a Select Committee of the House of Lords, when there is every prospect of its being as keenly contested as in the Lower House by the Humber Conservancy Commissioners and other bodies on the ground that the bridge would be a serious menace to the navigation of the river and to the Port of Goole. Already the promoters have expended upwards of £20,000 in the preparation of plans, the briefing of Counsel and other expenses connected with the progress of the Bill, while other interests represented have been mulcted in heavy costs. The fate of the measure at the present moment, however, turns very largely upon the decision of the Ministry of Transport in regard to the Government grant of 75 per cent. of the cost which has been promised. Not till after Easter will it be known whether the financial position of the country will permit of this being implemented by the present Government. In the meantime there appears to be a growing feeling that it will not, or at any rate, it will be held over until a more favourable period for the outlay of so large a sum. That being so, the hope has been expressed that an announcement to that effect should be made without delay in which event it is considered that the Hull Corporation would be well advised to drop the scheme and so put an end to the expenditure which promoters and opponents alike are continuing to incur in anticipation of the hearing of the Bill in the House of Lords. The Humber Conservancy feel very strongly on this point and are taking steps to urge their view upon the Minister of Transport.

The project continues to arouse the opposition of shipping interests in particular; the latest body to express its opinion being the Bristol Sailing Shipowners Association, whose annual report states that its objection is based on the facts that the height of the central span of the bridge would not allow several ships of the Association to pass under it, and that the construction of the bridge does not take into account future developments in shipping. The Association also endorses the objection that the piers would cause the silting up of the channels of the river and points out that the compulsion to erect training walls concurrently with the building of the bridge would mean immense expense involving the possibility of a sevenfold increase in shipping dues, etc. The committee of the Association conceives that the call for national economy must compel the abandonment of the project.

Port Facilities at Goole.

The port facilities at Goole are receiving important additions by the construction of the Aire and Calder Navigation of a

new south pier and a new entrance lock at the south-east corner of the port. Moreover, new transit sheds belonging to the London, Midland and Scottish Railway on the north side of the West Dock are nearly complete. Goole has suffered a diminution in the foreign coal export trade the figures of exports during the first ten months of the year revealing a substantial decrease when compared with those of the corresponding period of 1930, the decline being equal to 28 per cent. At the same time coastwise shipments of coal showed an increase of nearly 100,000 tons, equal to 15 per cent. In regard to the general trade of the port Mr. F. W. Porter, President of the Goole Chamber of Commerce and Shipping, at the annual meeting said that the tonnage entering the port had declined appreciably owing to the prevailing depression. In the first ten months exports of general merchandise had fallen by 14 per cent. and imports by 2 per cent., compared with 1930.

Replying to a question by Mr. R. A. Heptonstall regarding the disadvantage Goole traders are under in consequence of railway rates being charged on the same mileage as charged to Hull traders, Mr. E. Davies, goods superintendent of the London, Midland and Scottish Railway at Goole, said that it had been the practice for a long time for Goole to be included in a group arrangement with Hull, Grimsby, Immingham and New Holland in respect of traffic by railway. With regard to traffic, arising in or destined for Goole, the railway companies had been and were still prepared to deal with such traffic at special rates to meet any circumstances and a large number of exceptional rates had been issued as applicable to Goole town traffic only. In all such cases, Mr. Davies added, the rates chargeable were on the actual mileage from Goole or were figures less than the standard on the actual distance. As regards import and export traffic to and from the Continent Mr. Davies said that the railway companies could not see their way to depart from a system of grouped rates which had been in force for a long period and had met the requirements of the shipping industry. Such an arrangement did not, in the opinion of the railway companies, prejudice the interests of the Goole town traders.

Meeting of Hull Chamber of Commerce and Shipping.

An optimistic view of the position of the Port of Hull was voiced by Mr. W. Hugh Stephenson, J.P., in his presidential address at the meeting of the Hull Chamber of Commerce and Shipping. While the decline in the overseas trade of the United Kingdom in the nine months, January-September, showed a reduction in value of 25.65 per cent., that of Hull trade was 25.11 per cent. as compared with the corresponding period of 1930. Hull had thus fared no worse than the rest of the country and it seemed probable would continue to maintain its position as the third port of the United Kingdom. The net registered tonnage of vessels entering the docks at Hull in the ten months, January-October, was 5,486,466 tons, against 5,944,679 tons, a decline of 7.71 per cent. Taking the main

Hull and the Humber—continued

articles of import, the president claimed that bulk cargoes entering the port had been greater than in 1930. Wheat and kindred cereals, oilseeds, nuts and kernels and oilcakes all show increases. On the other hand timber, wool and petroleum are below last year's level. In the export trade it is a matter for regret that the exports of coal to places abroad have fallen by no less than 31 per cent., and in the aggregate are not more than one-third of the quantity exported in the boom year 1913. Other Humber ports have suffered in about the same ratio. Coal is Hull's principal export, the docks being admirably equipped with the latest shipping appliances to deal with immense quantities, and it is regarded as most important that if foreign trade is to be regained, everything possible should be done to increase the traffic by the removal of restrictions and the reduction of transit, port and trimming charges.

Mr. Minnitt Good, chairman of the Shipping Committee who seconded the adoption of the report compared the port costs which place Hull at a serious disadvantage compared with foreign rivals and stated that the shipping dues in Holland were 5.02 pence per registered ton, in Belgium 5d., in France 7.21d. and Germany 10.81d. While in England the general average was about 19d. and in Hull about that figure. That meant that the dock dues at Hull were double the highest of their Continental neighbours and almost four times as much as their nearest. Thus every ship coming to Hull with grain or oilseeds had to bear an extra 6d. per ton freight, as compared with the rate ruling to the near Continental ports. Years ago the charter rates to Hull were 6d. per ton less than to

Rotterdam and Antwerp, whereas now the position is reversed. In urging the need for quicker discharge Mr. Good said that some years ago leading industrialists were ready to join hands in an effort to quicken and improve the work of the port, but he had been informed that one serious difficulty in their way was that the owners of the docks did not regard with pleasure the idea of bringing in the necessary machinery to do the work. The railway company had always said that Hull represented a serious loss and produced accounts to show a deficit. Mr. Good, however, contended that if the accounts of the Port of Hull were made up properly and the docks given credit for all the work done on the dock estate, they would show a profit. Mr. Good expressed the hope that the National Government would recognise that a port is a national and not a private heritage and that if private owners could not give the assistance that would lead to development and improvement it was time to ask others to do so.

Favourable comment was made by the Lord Mayor on the fine new Billingsgate recently constructed at the St. Andrew's Dock and Major W. H. Carver, M.P., a director of the L. and N.E.R., stated that shortly the company were going to undertake extensive works at No. 2 Quay at the same dock. He also explained that the company had not been able to carry out the works at the other Hull docks owing to considerations of finance, but added that a large sum of money was about to be spent on extending and reconditioning the Royal Station Hotel at Hull.

*Holyhead Harbours**Ministry of Transport.*

THERE are two harbours at Holyhead, the outer harbour being a harbour of refuge, and the inner harbour, a commercial harbour.

Both harbours are the property of the Ministry of Transport. The inner harbour is leased to and managed by the London, Midland and Scottish Railway Company. The Captain of the Port is the local representative of the Minister of Transport and exercises jurisdiction over the outer harbour which is known generally as the New Harbour. This important work was begun in 1848 and completed and declared open in August, 1873.

The breakwater which forms the harbour is constructed of rubble masonry, founded on a rubble mound, and extends 1½ miles in a general east-north-eastward direction in the form of a double curve with its heel resting upon Soldiers Point. The greater portion of its length has its foundation in depths of from 7 to 8 fathoms. The toe of the breakwater extends about 50 yards south-eastwards of the lighthouse.

The breakwater affords partial shelter to a roadstead of 350 acres, and complete protection to the New Harbour of 260 acres, with a depth of 21 to 44-ft. in the roadstead, and of 19 to 45-ft. in the harbour, but with limited accommodation for vessels of heavy draft in the latter.

The harbour entrance, which is about 250 yards in width between the angle of the breakwater and the outer platter reef, has depths of from 5½ to 5½ fathoms.

There is accommodation in the New Harbour for large vessels and moorings have been provided by the Ministry, but there are no barges, lighters, etc., for trans-shipping cargo, and the depths are insufficient to allow vessels alongside the breakwater except at a small quay at the shore end. The harbour is therefore mainly used by vessels seeking shelter which are not required to pay any dues unless they take in or discharge cargo.

At the head of the New Harbour is the Trinity House Establishment, with a pier and landing jetty, and farther eastward along the Newry Beach is good beaching ground with a lifeboat slip near its eastern end. Near it again is Mackenzie Pier where there are sheltered landing steps with a depth of 35-ft., an excellent landing place.

London, Midland and Scottish Railway.

The old and inner harbours have a quayage of 7,467 lineal feet with warehouse into and out of which a heavy volume of merchandise traffic is loaded to and from the Company's steamers, which maintain daily cargo services with Dublin and regular sailings to Greenore, whence there is a direct fast train service with Northern Ireland.

The inner harbour has been deepened in order to provide improved berthing accommodation for a new and larger type of turbine steamers for carrying passengers and mails between England and Ireland and ensuring the maximum of speed and comfort for the travelling public, and considerable improvements have been made in regard to the provision of accommodation for customs examination.

The principal quay, a thousand feet in length, has a depth of water ranging from 12-ft. to 29-ft. at high water of spring tides, with a maximum at low water of 17-ft. The quays are well equipped with a 60-tons sheerlegs, a 20-tons coaling crane which is also available for other heavy lifts, and hydraulic cranes of 30 cwt. to 5 tons capacity for general cargo.

There are two dry docks, one 414-ft. long and 68½-ft. wide with 21-ft. of water on blocks at high water of spring tides and the other 307-ft. long, 70-ft. wide at the top, with a width of entrance of 62-ft. 9-in. at the top of the blocks and 5-ft. above zero on the tide gauge and there is also 12-ft. of water over the blocks with a 17-ft. tide.

Leaving the L.M.S. North main line at Crewe, an important cross-country line skirts the Welsh Coasts to Holyhead. This is a famous mail route for Ireland. Not only are the passenger train services among the most notable in the world, but the general merchandise traffic to this port is equally well served. Around the natural harbour of the port the railway company have built fully-equipped depots, warehouses, transit sheds, platforms, lairages and appliances for handling every kind of merchandise traffic and livestock.

The express goods services to and from Holyhead have been brought to such a state of organisation that traffic handed in at Dublin on one day is generally delivered in London, Birmingham, Manchester, Liverpool and many other English towns the next morning, a similar service being arranged for traffic bound in the other direction from England to Ireland.

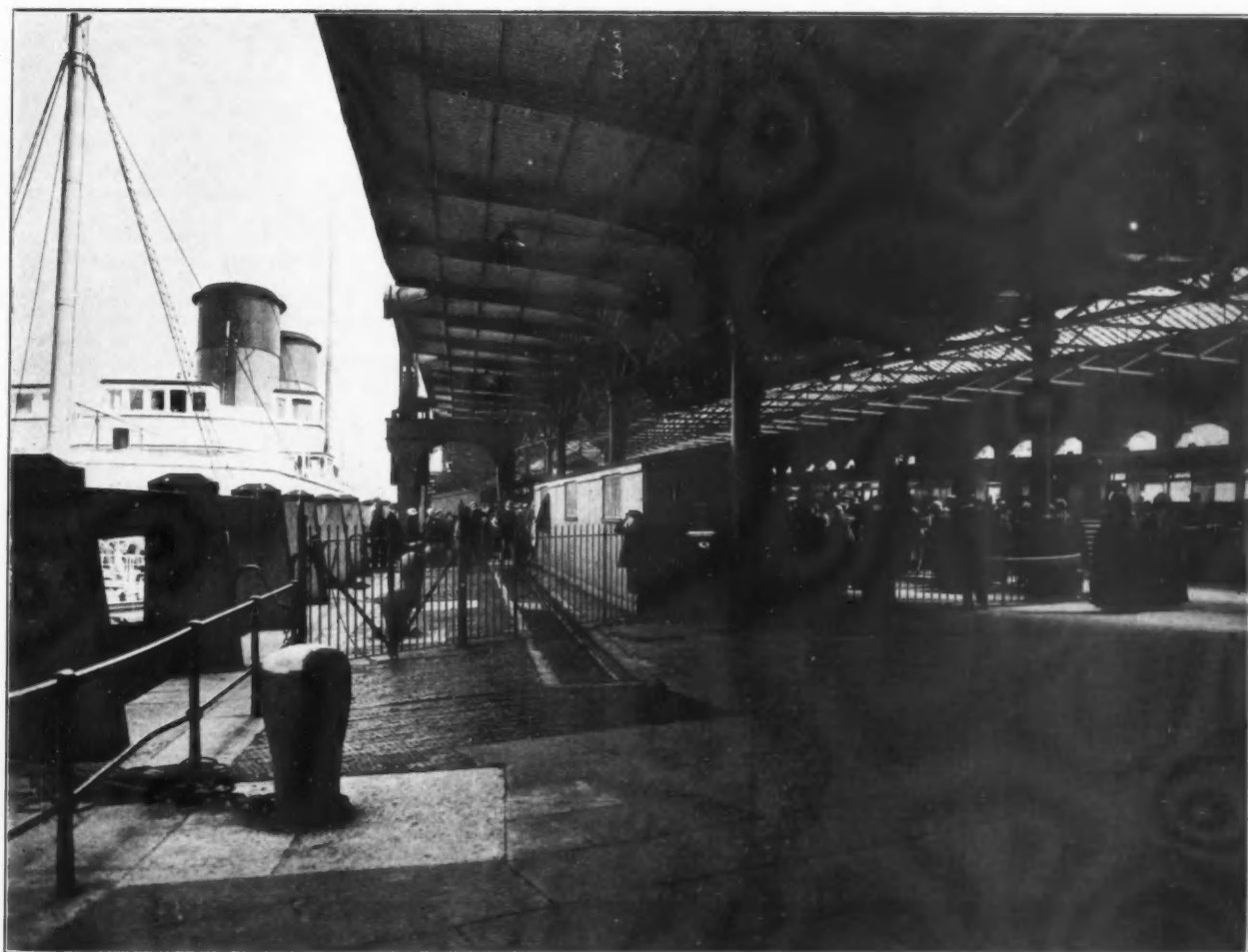
The Company's fine fleet of fast passenger and mail steamers connecting with express trains to and from London, Birmingham, Manchester and Liverpool and other important centres—ply daily between Holyhead and Kingstown (Dun Laoghaire) from which place a special fast train service to Dublin, Westland Row Station, is maintained, giving connections to all parts of Ireland.

Apart from the important passenger and mail traffic, a heavy tonnage of Irish produce and general traffic is imported together with consignments of cattle, horses, sheep and pigs for which extensive lairage accommodation is provided by the Company at the port. Exports comprise large tonnage of cotton and woollen wearing apparel, fish, grain and miscellaneous merchandise.

Holyhead Harbours



S.S. "Cambria" in Holyhead Harbour.



Boat Train Quay at Holyhead.

The Port of New York

Latest Data issued by the Bureau of Commerce

Value of Foreign Trade at the Port of New York.

DURING the month of September, 1931, the value of foreign trade at the Port of New York amounted to \$162,621,000. Compared with the same month in 1930 this is a decline of \$40,279,000, or 20 per cent. Exports were \$91,872,000, or 14 per cent. less than last year, and imports were \$67,749,000, being 27 per cent. under last year's figures.

	September		Net Change	
	1931	1930	Amount	Per Cent
Exports	\$67,749,000	\$92,419,000	-24,670,000	-26.7
Imports	94,872,000	110,481,000	-15,609,000	-14.1
Exports and Imports	162,621,000	202,900,000	-40,279,000	-19.8

Despite the reduced volume of foreign trade which is the characteristic world situation, the Port of New York is not falling behind in its competition for the commerce of the United States. This is especially true in the value of imports, which were 56 per cent. of the total of the country, the highest ratio since December, 1925. The value of the total foreign trade of the port during September represents 46 per cent. of that of the United States, and is the highest percentage since March, 1926.

Grain Exports Gain.

The volume of grain exports at the Port of New York during the month of September, 1931, amounted to 6,567,000 bushels, an increase of 15 per cent. as compared with the same period in 1930.

	September		Net Change	
	1931	1930	Amount	Per Cent.
Through the Port of New York	Bushels	Bushels		
Domestic and Canadian Grain	6,567,000	5,697,000	+ 870,000	+ 15.3
Domestic Grain	1,257,000	83,000	+1,174,000	+1414.5
Canadian Grain	5,310,000	5,614,000	- 304,000	- 5.4

Commerce at Port Newark.

Receipts of lumber by vessel at Port Newark during the month of October, 1931, amounted to 14,165,000 board feet as compared with 15,721,000 board feet received during the same period in 1930, a decline of 10 per cent.

Inland shipments of lumber from Port Newark totalled 47,369,000 board feet, of which 33,315,000 moved by railroad and 14,051,000 by truck.

Receipts by vessel of cargo other than lumber amounted to 8,304 tons as compared with 9,471 tons received in October of last year, a decline of 12 per cent. This tonnage consisted largely of potatoes, 5,243 tons, received from Maine, and is an increase of 13.7 per cent. over the receipts of potatoes in 1930, which at that time were shipped from Canada.

Twenty-one steamers arrived at Port Newark during the month, the same number as in October, 1930.

Fruits and Vegetables by Coastwise Steamers.

Fruits and vegetables from southern ports are arriving at New York by coastwise steamers in increasing volume, according to reports of steamship lines. The equipment of steamers with modern refrigerating facilities insures the condition of such cargo as vegetables and citrus fruits from Florida and other southern States, and the low rates and superior methods of handling perishable cargoes have attracted shippers. Shipments from Jacksonville, Tampa and Miami are more than double in volume than they were a year ago.

Record Shipments.

A record shipment of fruit was recently reported by the Atlantic Transport Line "Minnewaska," when it discharged 50,000 packages of apples, pears, plums and grape fruit at London. It is claimed that the fruit was consumed in England within 15 days after leaving the orchards in this country.

The Pacific steamer "Tohsei Maru" of the K Line recently delivered at San Francisco the largest cargo of raw silk ever brought into that port, totalling 7,642 bales, and all destined to New York. Immediately upon being discharged, 1,000 bales were rushed overland by rail and the remainder routed to New York by intercoastal lines.

Exports of Apples.

Over 1,250,000 barrels of apples moved through the Port of New York up till the end of November last year, and there is little doubt that this export movement will exceed that of the

1930 season. Most of this fruit comes from the Shenandoah Valley in Virginia, which is shipping a record crop.

Transcontinental shipments from the Pacific Coast are not as heavy as in former seasons. However, more than 750,000 boxes have been exported via this port up to the end of November, 1931, mostly fancy grades from Oregon and Washington.

Several full cargoes of apples have been shipped during this season from this port, which is a new development in the handling of export fruit. The largest proportion of apples, however, continue to be exported by liner service, which insures the quickest delivery of the fruit to the European markets.

London continues to be the leading market for United States apples, and is followed by Liverpool, Hamburg and Glasgow. It is interesting to note that Brazil and the Argentine have increased their imports of our apples. The New York and South American ports has had much to do with the building up of these comparatively new markets.

Steamship Passenger Traffic.

Whereas in former years aliens comprised the majority of ocean travellers to or from foreign parts, the situation is now reversed. Since the first of the year, out of a total of 689,424 steamship passengers that arrived or departed by foreign routes from this harbour, 442,896 were United States citizens, or over 60 per cent. of the passenger movement. This increase in the citizens class bids fair to equal the number of aliens that travelled via this port before the immigrant restrictions went into effect. The Bureau of Immigration states in its report for September, 1931, that "at New York, by far the principal port of landing for arrivals from overseas, 54,656 (24,195 male and 30,461 female) citizens arrived this month." This compares with a total of 61,894 citizens arriving at all our seaports during that period.

INBOUND—		September, 1931	September, 1930
Aliens, Immigrant ... ..	...	3,008	10,818
Aliens, Non-Immigrant ... ..	...	16,079	22,250
U.S. Citizens ... ..	...	54,656	71,021
Total ... ..	...	73,743	104,089
OUTBOUND—			
Aliens, Emigrant ... ..	...	4,920	3,471
Aliens, Non-Emigrant ... ..	...	14,352	18,766
U.S. Citizens ... ..	...	33,589	47,996
Total ... ..	...	52,861	70,233
Total Inbound and Outbound	...	126,604	174,322
Total for 9 months	...	689,424	900,503

Up to the end of September, 1931, the number of passengers travelling to or from this port by the Intercoastal, Coast, Long Island Sound and River routes, exclusive of purely excursionists, has shown a small increase over the same period for 1930. The 1931 total over the domestic routes for the nine-month period is 931,981 passengers, against 924,507 carried in the 1930 period.

Big Increase in Pleasure Cruises.

One of the big developments in shipping circles is the marked increase in the business of pleasure cruising from the Port of New York. Starting some years ago with half-a-dozen or more sailing during winter months to the Mediterranean or round the world, the demand for more and more of these ocean vacations has increased very rapidly. Sailing lists show that approximately 120 of these cruises are scheduled from this port during the next five months. Over 100 of these are to the West Indies and a number of the best-known transatlantic liners will be diverted to these increasingly popular cruises. Whereas approximately 25,000 people enjoyed these trips last season spending more than \$8,000,000 for accommodation, it is estimated that between 60,000 and 75,000 will book during this coming season, and although cabin rates have been reduced, the passenger revenue to the steamship lines will probably exceed \$15,000,000.

Vessel Movements in Foreign Trade.

The number of entrances and clearances of vessels in foreign trade during the month of October, 1931, were below those of the same month of 1930.

	October, 1931		October, 1930	
	No. of Vessels	Vessel Tonnage	No. of Vessels	Vessel Tonnage
Entrances	476	2,361,413	530	2,546,629
Clearances	513	2,525,037	548	2,636,414

The Port of New York—continued

Steamship Sailings.

The number of direct sailings of vessels in foreign service from the Port of New York during the month of October, 1931, is still 8 per cent. less than the number reported for the same month in 1930. However, the change in the grand total of all sailings is relatively small. In fact, the October, 1931, total is only about 3 per cent. under the 1930 period. Direct sailings via several foreign routes are down, but there has been little or no reduction in the coastal or intercoastal trades. It is also interesting to note that the average number of all sailings from this port is over 50 a day. The highest daily number of departures for the month took place on Saturday, October 24, 1931, when 83 vessels cleared from this harbour. Of this total, 37 were destined for foreign ports, including 7 to the United Kingdom, 11 to Caribbean-Mexican ports and 3 to the Canadian Atlantic Seaboard. Domestic sailings accounted for 46 of the total, of which 3 were direct to the Pacific Coast, 11 to South Atlantic and Gulf points, 5 were tankers and 3 coal carriers.

New Liner for Bermuda Service.

The turbo-electric liner "Monarch of Bermuda" arrived at New York on November 23, 1931, from Glasgow, where she was built for the Furness-Bermuda Line at a cost of \$8,000,000. The vessel made her maiden trip to Bermuda on Saturday, November 28, 1931, from Pier 95, North River. She has a gross register of 23,200 tons, and is 580-ft. long, with a beam of 77-ft. Her quadruple screws are capable of maintaining a speed of 20 knots.

The new flagship of the Furness-Bermuda Line embodies the very latest in passenger accommodations and is the only vessel afloat having a bath and shower in every state room. She is equipped to carry 830 first-class and 30 second-class passengers.

For handling cargo, the vessel is equipped with four 5-ton and one 15-ton derricks with electric winches at the foremast, and side doors for transferring cargo at the after part of the ship.

New Piers and Changes.

Piers 15 and 16, East River, Manhattan, are to be extended 50-ft. to an approximate length of 600-ft. New bulkhead sheds will also be constructed and the substructure of both piers rebuilt. A new shed will also be erected on Pier 16, and it is estimated the work will require five months to complete at a cost of \$300,000.

The U.S. Lines have now transferred the vessels in their Hamburg service to Piers 59 and 60, North River, and will no longer use the Hoboken Terminal.

The Oriole Lines will hereafter use Pier 64, North Pier, instead of Pier 39, North River, as heretofore.

Steamship Services.

Those firms and individuals interested in the development of the American Merchant Marine Service will be interested to know that from New York, the largest port in point of foreign trade and shipping, no less than 41 American flag lines operate a total of 75 services, of which 8 are to Europe, 10 to South America, 17 to Caribbean and Central American ports, 3 to the Far East, 3 to Africa, 1 to Australia and New Zealand, and 2 Around-the-World services.

New York State Barge Canal.

It is very gratifying to note the increase in the tonnage passing through the Barge Canal this season compared with 1930. Since the opening of navigation, up to November 7, 1931, a total of 3,351,618 tons has passed through the canal compared to 3,344,351 tons carried during the 1930 period. The Erie Division reports a gain of 115,250 tons over 1930. The Oswego Division also shows a gain of 23,548 tons. The Champlain and Cayuga-Seneca Divisions, however, show a total loss of 131,530 tons. The decreased movement via these latter divisions is primarily due to commodities moving via the Champlain Division to Canada, and which has been considerably restricted by the new Canadian tariff which went into effect last spring.

Iron and steel articles totalled 194,291 tons up to the end of November, 1931, compared with 131,717 tons carried in 1930.

Metals other than iron and steel amounted to 26,654 tons, greatly exceeding the 1,728 tons carried in 1930.

Heavy shipments of sugar have brought last season's volume up to 290,955 tons, or more than double the 124,204 tons moved in 1930.

Wheat shipments have not maintained the volume previously reported earlier this season, but will undoubtedly reach a million tons by the close of navigation. The 1931 volume to November 7th totalled 983,332 tons, against 1,072,758 tons reported for the corresponding 1930 period.

Flour shipments are well ahead of the previous year, with 32,267 tons reported, against the 1930 total of 2,150 tons.

The movement of pig iron and billets for the season was 66,316 tons, a decrease from the 111,043 tons carried in 1930, and which is directly charged to the depression prevailing in the metal industries.

Fertilisers are also under the previous year's total, with 82,276 tons reported for 1931, compared with 111,177 tons in 1930 at the end of November.

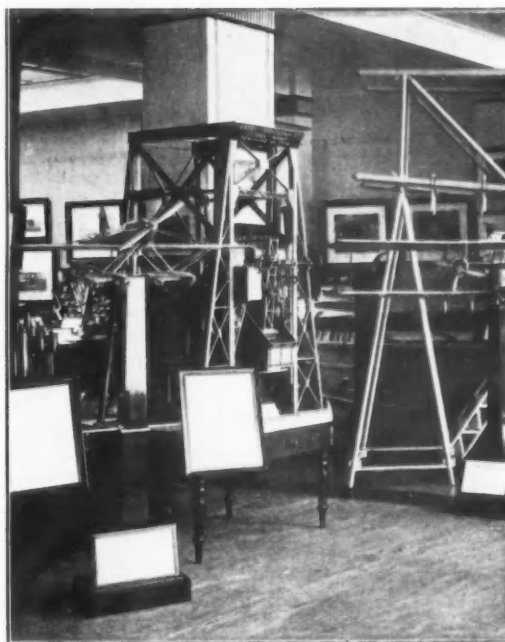
The value of the State Barge Canal route in meeting Western competition is well illustrated by a shipment of 40 cars of canned milk destined for Houston, Texas, from Wisconsin and Illinois points. The shippers learned they could save money by using the all-water Great Lakes-Barge Canal-Coastal Route, although it is probably four to five times the direct distance from the territory via the Mississippi Valley to Texas. It is estimated that the all-water route saved the shippers over \$8,300, or more than \$200 a car.

Terminal Efficiency.

A remarkable turnaround operation was reported by the Cunard liner "Mauretania" when it arrived at Pier 54, North River, on November 17, 1931, docking at 8.50 p.m. and sailing again eight hours later at 5 a.m. next morning. During these few hours this vessel discharged 8,000 sacks of mail, over 300 inbound passengers and more than 300 tons of cargo, and took aboard 5,000 tons of fuel oil, in addition to other supplies, food and laundry, as well as 900 passengers bound for a two-weeks' cruise in the West Indies.

"Norfolk" Spades for Great Western Railway.

The Great Western Railway Co. have placed with Messrs. Vickers-Armstrongs, Ltd., an order for five "Norfolk" Spades. These appliances, which are the invention of Mr. T. L. Norfolk, the engineer-in-chief of the Mersey Docks and Harbour Board, are for use on the coaling plants in the Great Western Railway Docks at Cardiff, Barry, Newport, Swansea and Port Talbot.



Model of the "Norfolk" Spade.

The object of the "Norfolk" Spade is to facilitate the clearance from coal wagons of small coal or "duff," which usually does not flow easily when the wagon is tipped. At Port Talbot the appliance will be used in connection with a coaling belt conveyor; at the other four docks it will be used in connection with hydraulic hoists.

A working model of the "Norfolk" Spade can be seen in the showroom at Vickers House, Broadway, Westminster, London, S.W.1, where a permanent exhibition of representative products of the Vickers group of companies is established.

Quick Despatch at Newport Docks.

Another instance of quick despatch was afforded in the loading of the s.s. "Ashtree" at these docks on November 30th, when the following quantities of coal were shipped into that steamer: Cargo, 2,144 tons 13 cwts.; bunkers, 83 tons 2 cwts.; total, 2,227 tons 15 cwts. Loading commenced at 7.15 a.m. on the date mentioned and was completed at 4 p.m. the same day in the net working time of 6½ hours. The average rate of loading was 359 tons per hour.

Jugoslavian and Near Eastern Port Matters.

STATISTICS for shipping at Greek ports, during the first nine months of 1931, have just been published by the Ministry for National Economy, and are as follows:—

A shipping congress has been held at Split (Jugoslavia) for the purpose of discussing the problems connected with the development of Yugoslav harbours. The depression of shipping due particularly to the decline of lumber exports has in-

	ARRIVALS				CLEARANCES			
	1931		1930		1931		1930	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
American ...	22	73,758	37	115,804	20	64,048	30	103,190
British ...	175	391,102	206	425,932	118	199,189	175	306,009
Dutch ...	40	75,409	33	44,092	35	48,861	42	55,730
French ...	105	304,174	103	331,640	90	299,656	89	286,029
German ...	84	165,549	70	105,633	76	141,837	64	103,043
Greek ...	751	685,741	811	785,934	335	337,246	455	431,218
Italian ...	703	1,598,419	717	1,637,115	649	1,492,305	648	1,487,082
Roumanian ...	71	82,279	70	84,225	66	84,009	58	74,614
Other Flags ...	455	665,153	385	368,966	328	525,182	207	242,184

In order to obtain a good idea of the situation of trade at various ports, it may be interesting to note the following figures regarding tonnage arrived and cleared at the main Greek ports:—

duced the Yugoslav Government to postpone any decision on the question of increasing harbour facilities at Sussak, and the organisation of the general bonded stores is far from being completed. In connection with the position of the Yugoslav

PIREAEUS	ARRIVALS				CLEARANCES			
	1931		1930		1931		1930	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
American ...	22	72,614	33	110,012	2	6,216	9	31,046
British ...	109	251,980	142	325,470	35	69,422	72	149,807
Dutch ...	20	46,300	12	17,436	5	5,266	8	10,755
French ...	94	300,343	91	310,820	87	287,610	84	267,710
German ...	51	77,776	49	75,992	12	18,920	9	15,408
Greek ...	418	479,823	419	508,805	158	188,938	209	250,335
Italian ...	299	737,392	301	780,063	279	634,316	293	728,049
Roumanian ...	65	78,427	60	80,167	61	78,155	58	74,614
Other flags ...	217	445,501	183	230,702	163	379,365	90	139,978
SALONIKA								
American ...	—	—	3	5,384	10	31,778	14	47,267
British ...	15	34,969	14	23,200	20	34,132	22	35,439
Dutch ...	5	8,000	3	5,767	2	2,518	2	1,809
French ...	3	1,182	5	6,568	—	—	4	16,618
German ...	4	6,006	1	1,651	10	15,847	4	6,006
Greek ...	26	26,996	28	33,862	19	21,833	9	8,974
Italian ...	38	65,972	44	99,462	40	77,742	46	102,597
Roumanian ...	6	3,852	9	3,172	—	—	—	—
Other flags ...	40	54,418	26	26,323	46	65,747	31	31,567

At Pireaus an increase is noticed in imports only as far as the German and Dutch flags are concerned, while at Salonika to these countries may also be added the British flag, which has greatly increased its share in Salonika shipping, chiefly owing to the larger imports of oil and gasoline. However, some attention must also be paid to other Greek ports, such as Patras, where the participation of the Italian flag has increased from 336,420 n.r.t. arrived in 1930 to 364,299 n.r.t. in 1931, and from 254,180 n.r.t. cleared in 1930 to 321,418 n.r.t. in 1931, and the German flag has shown a correspondent increase; at Calamata where shipping as a whole has shown an increase; at Cavalla, where, owing to the slump in tobacco exports, shipping has shown a decrease particularly as far as foreign flags are concerned.

The difficult financial situation of the world, and the influence on the Greek Money Market, has considerably delayed harbour enlargements and improvements at Greek ports, and no decision has been taken as yet in connection with the suggestions for the reorganisation of the Port of Pireaus, which have been made by Commendatore Coen Cagli, managing director of the Società del Porto Industriale di Venezia, and who has been requested by the Greek Government to investigate the situation.

However, commencing November 15th, 1931, the Organismos Limenos Pireos has taken up the operation of shipping, unloading, storage, etc., with permanent labour at a daily wage of 100-120 drachmas per eight hours. No workmen, except those controlled by the Organismos Limenos Pireos, will be permitted to work in the zone of the port. This step settles many of the hindrances existing in the Port of Pireaus concerning the progress of trade.

It is understood that the Salonika Greek Free Zone Administration has taken up the question of the project, which has been prepared by the Société G. Hersent, for the enlargement of the Port of Salonika, but that it has been decided to request the French contractors to slightly alter the original project, so that the harbour will be better suited to meet the requirements of trade.

Steps have been taken for the construction of the Port of Itia as at present there is only a fairway. There are satisfactory opportunities for the progress of trade at Itia since this place is used for the shipment of goods from Delfe. During the war the Inter Allied Armies used this bay for the unloading of men and munitions, which were sent to Salonika by way of Bralo.

ports it may be interesting to examine the following figures regarding facilities at the main harbours.

	Area of the water surface	Area of the port facilities	QUAYAGE for large ships	QUAYAGE for small ships	Total
	sq. metres	sq. metres	metres	metres	
Sussak ...	100,000	11,680	1,300	500	1,800
Split ...	728,000	19,680	350	880	1,230
Sibenik ...	272,000	37,780	800	200	1,000
Dubrovnik ...	500,000	40,000	870	400	1,270

German engineers have recently visited Yugoslav ports in order to study the opportunities of building a large Yugoslav sea outlet, and it would appear that the German metal industry is heavily interested in this scheme, but the decision of the Yugoslav Government on the proposals which might be made from the German side very much depend upon the question of the progress of railway connections between Dalmatia and the inner part of the country, and this question is influenced by political and military considerations. It is understood that large dredging works are to be carried out in the Bojana mouth connecting the Lake of Scutari with the Adriatic Sea.

Wm. Simons and Co., Ltd., Renfrew.

The following is a list of vessels constructed by Wm. Simons and Co., Ltd., Renfrew, during the year 1931: Dredger, tonnage 508, i.h.p. 750, owners, British; dredger, tonnage 2,880, i.h.p. 3,000, owners, Colonial. Besides the above a large quantity of dredging machinery was also supplied during the year.

Vickers-Armstrongs, Limited.

Mr. J. M. Ormston, M.B.E., has been appointed a Special Director of Vickers-Armstrongs Limited. He will be in charge of the Shipbuilding Department at Barrow, directly responsible to Mr. J. Callander.

New Works in the Port of Madras.

The Port of Madras have recently completed building a new reinforced concrete structure on the North Quay. This is 650-ft. long and is used for import coal and for groundnut exports.

The quay is of very heavy construction in order to carry a load of 7-cwts. of stacked cargo per square foot, and the superstructure is carried on 220 reinforced concrete piles 2-ft. by 2-ft. by 75-ft. long. These piles weighed 24 tons each and were handled and jetted down into the clay at the harbour bottom by floating sheer-legs.

The Port of London

Detailed Survey of the Docks owned and operated by the Port of London Authority

(Continued from page 54)



The Port of London at Tilbury, showing Passenger Landing Stage and Tilbury Docks.

THE article on the Port of London that appeared in our previous issue gave a brief outline of the history and development of the port and a general account of its present-day activities. An outline of the constitution and finances of the Port of London Authority was also given. This is now followed up by a detailed survey of the individual docks owned and operated by the Authority.

For administrative purposes the docks in the Port of London are divided into five groups, namely, the London and St. Katharine Docks, the East and West India and Millwall Docks, the Royal Victoria, Albert and King George V. Docks, Surrey Commercial Docks and Tilbury Docks.

St. Katharine Dock.

The St. Katharine Dock, the one nearest to the City, is the smallest dock in the Port of London and was opened in 1828. It is used by vessels up to 1,000 tons net register engaged in the coastwise and Continental trades, and it possesses ranges of solidly constructed warehouses with an aggregate floor space of 30 acres. In these warehouses are stored a great variety of goods, including wool, tea, hops, dried fruit, canned goods, perfume and shells. Specially lighted show floors are provided where valuable shells are lotted, catalogued and displayed prior to being offered at public sales.

London Dock.

Separated only by a roadway is the London Dock, which was opened in 1805 and is used by vessels of moderate size engaged in trade with European and Mediterranean ports, and also regular coastal services. Large quantities of goods discharged from ocean-going vessels at the docks lower down the river are brought to the London and St. Katharine Docks by lighters and other conveyances for storage. Nowhere in the world is there such a collection of varieties of goods as at these warehouses. Here is stored wool, skins, wines, spirits, spices, sugar, india-

rubber, balata, tallow, ivory, bark, gum, drugs, essences, coffee, cocoa, iodine, quicksilver, essential oils, canned fruits and fish, hemp and coir, yarn, coconuts and many other varieties of merchandise.

The wool warehouses have a floor area exceeding 40 acres, and storage accommodation is available for one million bales, the equivalent of 50 million fleeces. Prior to the sales, which are held six times yearly at the Wool Exchange, the bales are set up in long avenues on the show floor of the warehouses, which have roofs specially constructed to give northern light to enable the prospective buyers to inspect and judge the wool under the most advantageous conditions. The organisation for dealing with wool is such that lots bought on the Exchange during an afternoon can be delivered to train or ship for despatch to their destinations on the following morning.

Most of the ivory dealt with at the London Docks comes from Africa and Asia. There are also rhinoceros horns, narwhal tusks and hippopotamus teeth, as well as quantities of fossil ivory from Siberia.

West India and Millwall Docks.

The West India and Millwall Docks are situated in the loop in the river known as the Isle of Dogs. They were built as two distinct groups of docks, but in 1929 they were linked up with one another by the formation of passages sufficiently deep and wide to enable vessels to move freely from one part of the system to another.

The West India Docks consist of the import and the export dock, which were built by the West India merchants in 1802. The South-West India Dock, immediately south of and parallel to the West India Export Dock, was originally the City Canal opened in 1805 to enable sailing ships to save time by going direct from Limehouse Reach to Blackwall Reach instead of navigating round the Isle of Dogs. This canal was acquired by the West India Dock Company in 1829 and was reconstructed to form a dock.

The Port of London—continued

The West India Dock is still the centre for the West Indian trade, and large quantities of sugar and rum are dealt with at this dock. In addition to these commodities, wines, dried fruits, slates, marbles, resin, port and olive oil are received from Mediterranean ports, while wool and tobacco are discharged from vessels arriving from Africa. The West India Dock is the chief centre of the London hardwood trade, and large stocks of mahogany, teak and other timber are stored in specially equipped sheds.

distribution of bananas, which arrive by a regular service of vessels from Jamaica. Special mechanical equipment enables the fruit to be conveyed direct from the ship's hold to waiting rail and road vehicles. Expeditious delivery to Covent Garden Market and distribution throughout the country is thereby ensured.

A recent development at the East India Dock has been the establishment of a quarantine station for pedigree stock for export.

Five miles by road from the heart of the City of London lie the "Royal" Docks. The "Royal" Docks, as they are now known, comprise the Royal Victoria Dock, the Royal Albert Dock and the King George V. Dock, all of which are inter-communicating and together form the largest enclosed area of dock water in the world, the water area being some 246 acres, with a quayage of 12½ miles.

Royal Victoria Dock.

The Royal Victoria Dock was opened in 1855. The dock is 94 acres in extent and differs from those designed at an earlier date in that the north side has jetties at right angles to the quay, with transit sheds, warehouses and vaults for the handling and sorting of perishable goods, transit cargo and merchandise intended to be stored. Visitors to the Royal Victoria Dock are impressed with the substantial nature of the warehouses on the north side, which were at first used for the storage of grain and general cargoes, but are now almost exclusively occupied by tobacco.

There are two specially equipped berths for dealing with chilled and frozen meat with cold stores adjacent.

Two modern flour mills on the south side of the dock are equipped with plant for discharging grain in bulk direct from ship to the mills and with loading banks for the expeditious loading and discharging of flour, etc., by road and rail.

On the north side of the dock are the Exchange Sidings, which have a capacity for 1,200 wagons, and it is here that the special refrigerated vans are marshalled for despatch almost daily to the provinces of the large consignments of meat dealt with at the Royal Docks.

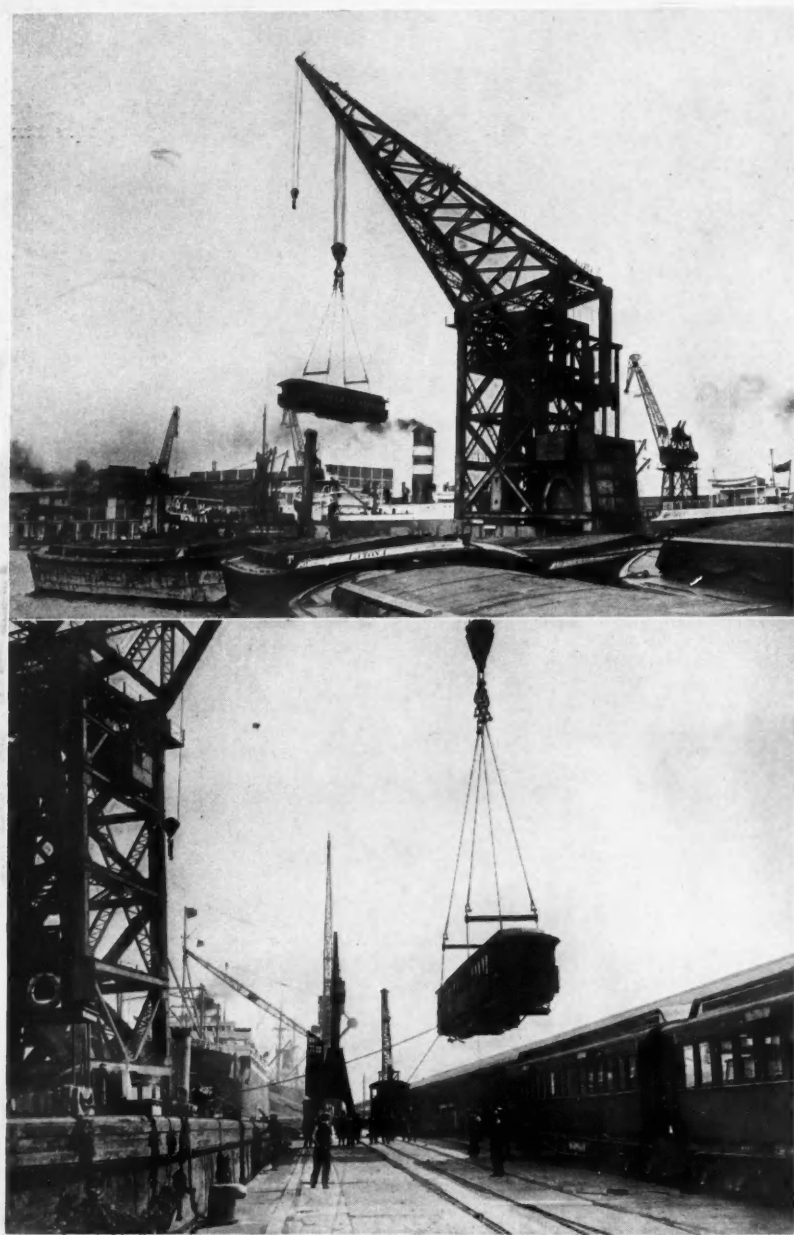
Royal Albert Dock.

The Royal Albert Dock was opened in 1880 and was constructed at a cost of £2,200,000, which at that date was considered a very economical figure, having regard to the area of the dock and the accommodation provided. It was built as a transit dock and extensive transit sheds covering an area of over 30 acres were erected on its three miles of quay. Since the dock was opened many alterations and improvements have been made; the original quays were constructed of timber, but these have since been rebuilt in concrete. At the north-west corner of the dock is the specially equipped shed for dealing with the South American chilled and frozen meat trade. There are three loading platforms on which 44 refrigerated railway wagons and 26 road vans can be loaded simultaneously, the whole area being served by runways which convey the carcasses of meat direct from the ship to the vehicle into which it is to be loaded.

Almost adjoining is the berth where a regular service of vessels from New Zealand discharge frozen meat and in the rear of which is No. 6 Cold Store, which has accommodation equivalent to 250,000 carcasses of mutton. This building is 300-ft. long, has a depth of 100-ft., and is 100-ft. high. The meat is conveyed by mechanical runways direct from the quay sorting floor into the store. It is built of ferro-concrete and insulated by slabs of pressed cork. Everything which passes in and out of this store must do so by way of the top floor, which is served by a series of internal and external lifts, as well as the runways previously mentioned.

King George V. Dock.

On the south side of the Royal Albert Dock and parallel to it is the King George V. Dock, which was opened by H.M. King George V. in 1921. The King George V. Dock is connected to the Royal Albert Dock by a wide cutting and is approached from the river by an entrance lock in Gallions Reach. This lock is 800-ft. long by 100-ft. wide, with a depth of 45-ft. below Trinity High Water. The dock has a water area of 64 acres with a depth of 35½-ft. below Trinity High Water (increased to 38-ft. when fully impounded). It is



"London Mammoth" (150 tons capacity) shipping Railway Coaches direct from Rail alongside.

The Millwall Dock, which lies to the south and at right angles to the West India Docks, was opened in 1868. It was constructed by the Millwall Freehold Land and Dock Company. At the same time that the India and Millwall Docks were made inter-communicating, further improvements were carried out, the principal of which was the construction of a new entrance lock leading from Blackwall Reach into the South-West India Dock. Altogether over £1,000,000 has been spent in modernising this dock system.

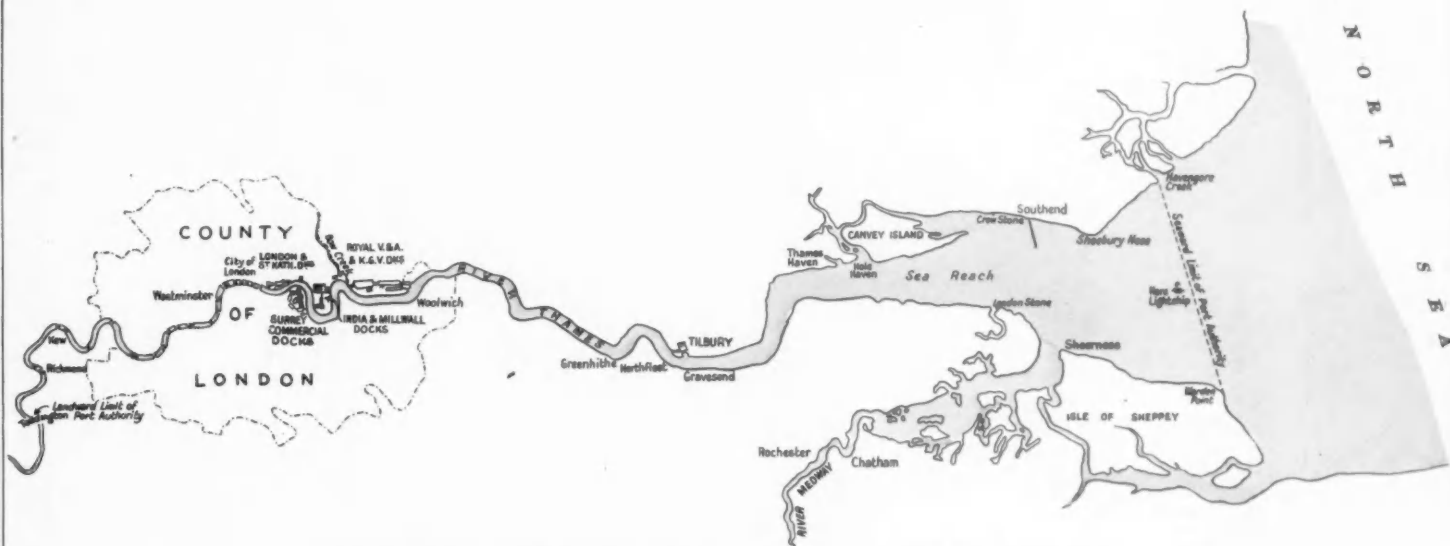
The Millwall Dock is specially equipped to handle grain, and the central granary has a capacity for 24,000 tons. The bulk grain is sucked from the holds of vessels by pneumatic elevators, weighed automatically and passed by conveyors into the granaries.

East India Docks.

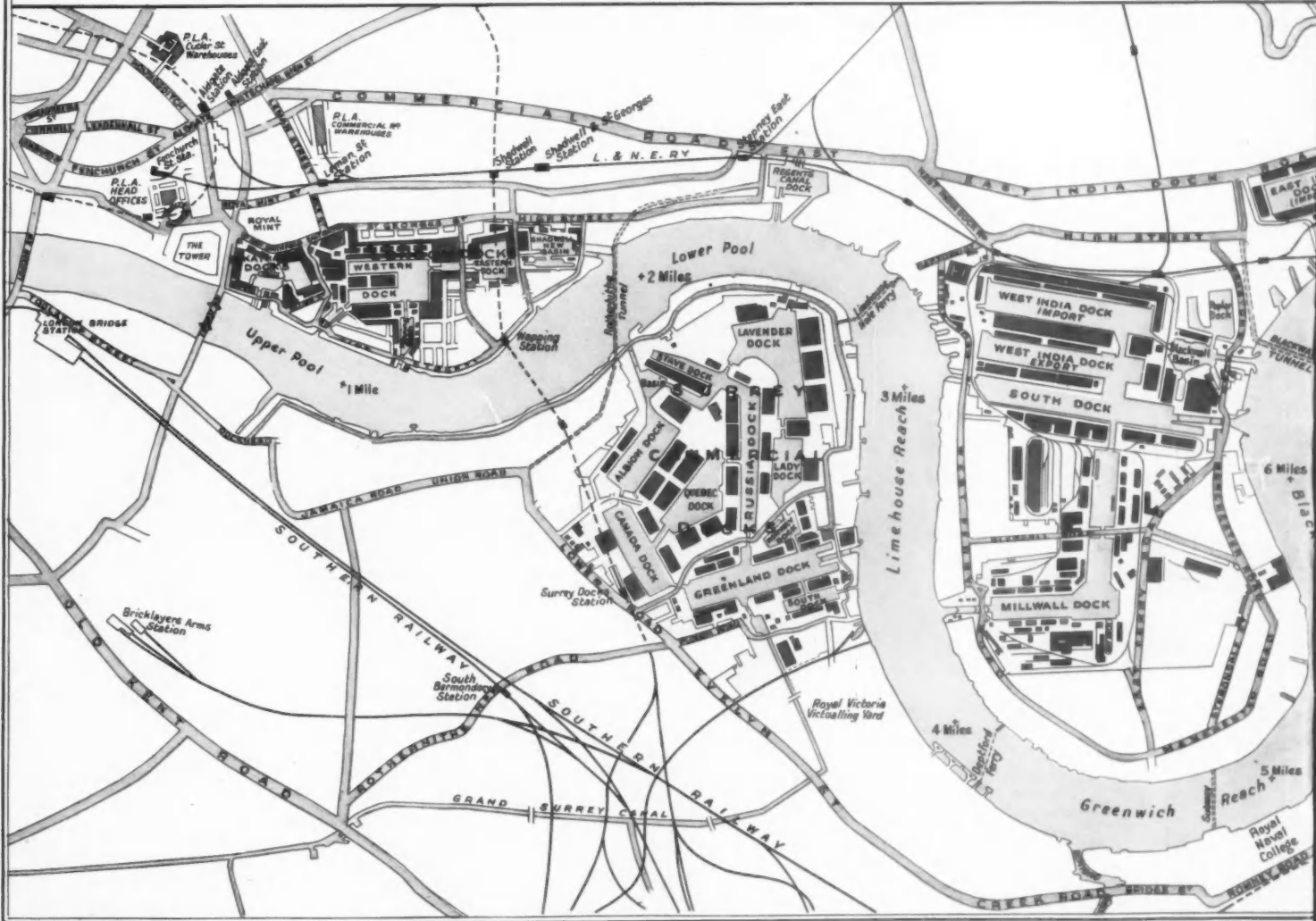
The East India Docks, built in 1806 by a subsidiary company of the famous East India Co., are situated adjacent to the West India and Millwall Docks, and consist of two separate docks and a basin. They are equipped for dealing with general import and export cargo. One berth is set aside for the reception and

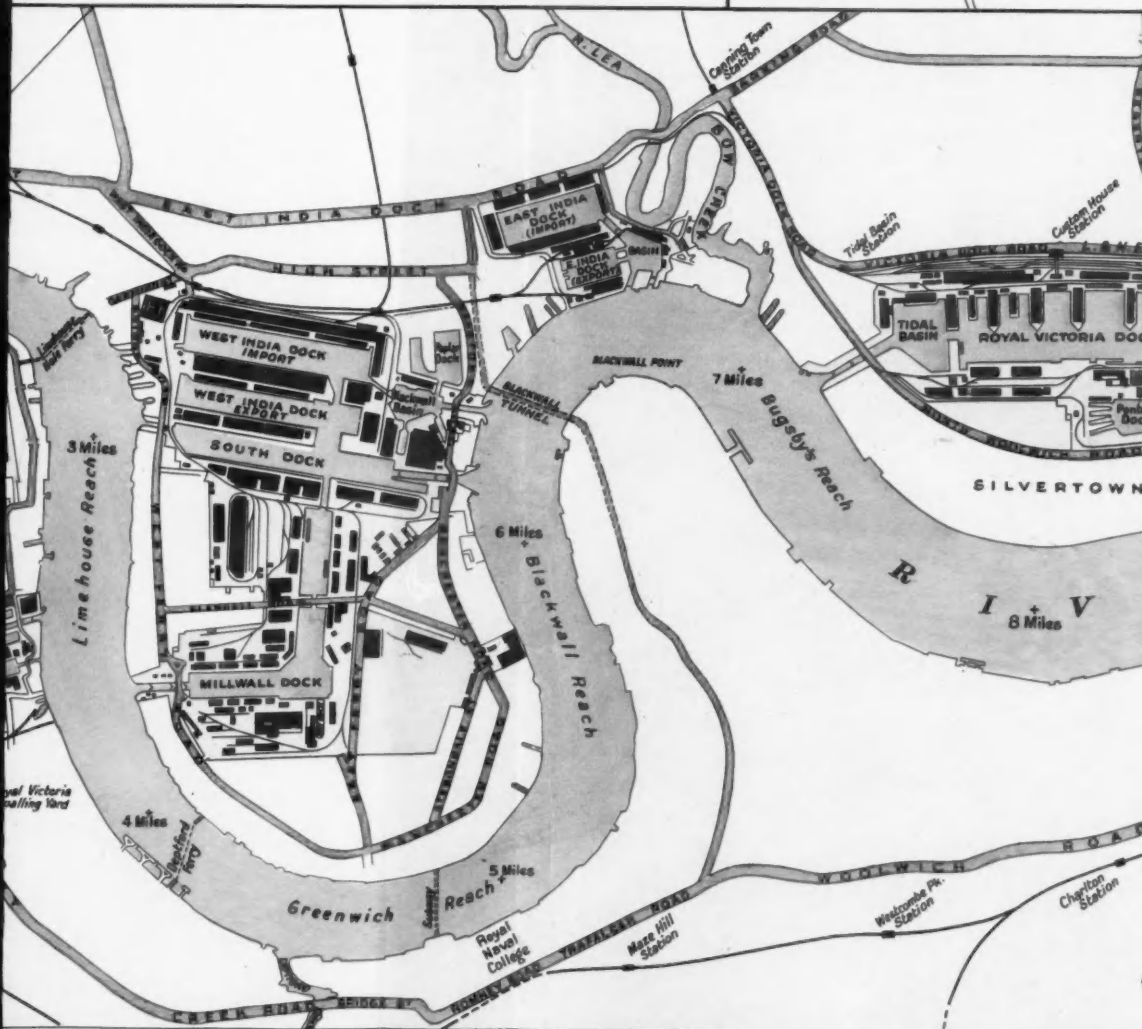
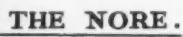
PORT OF LONDON.

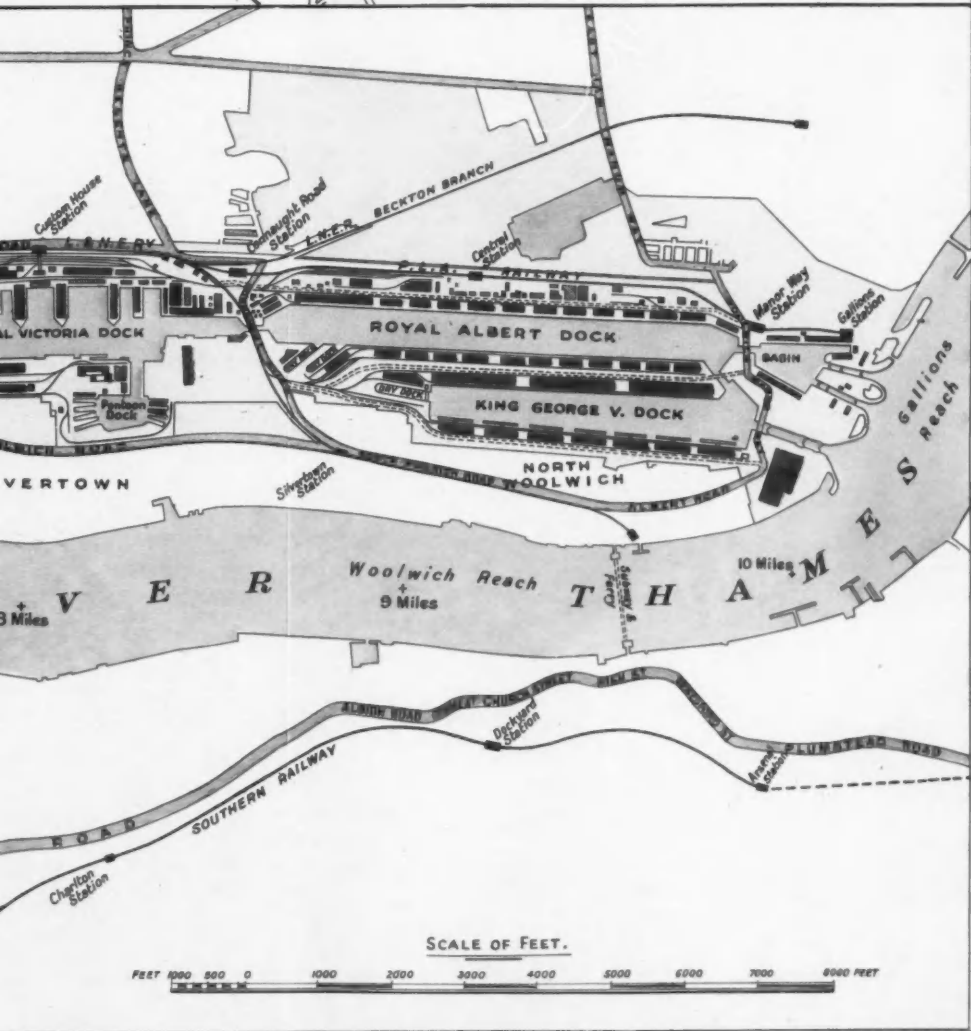
UNDER THE JURISDICTION OF THE PORT OF LONDON AUTHORITY.



RIVER THAMES FROM TEDDINGTON TO THE NORE.





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PORT OF LONDON.

AN EXPLANATION OF THE PORT OF LONDON AT LOW WATER.



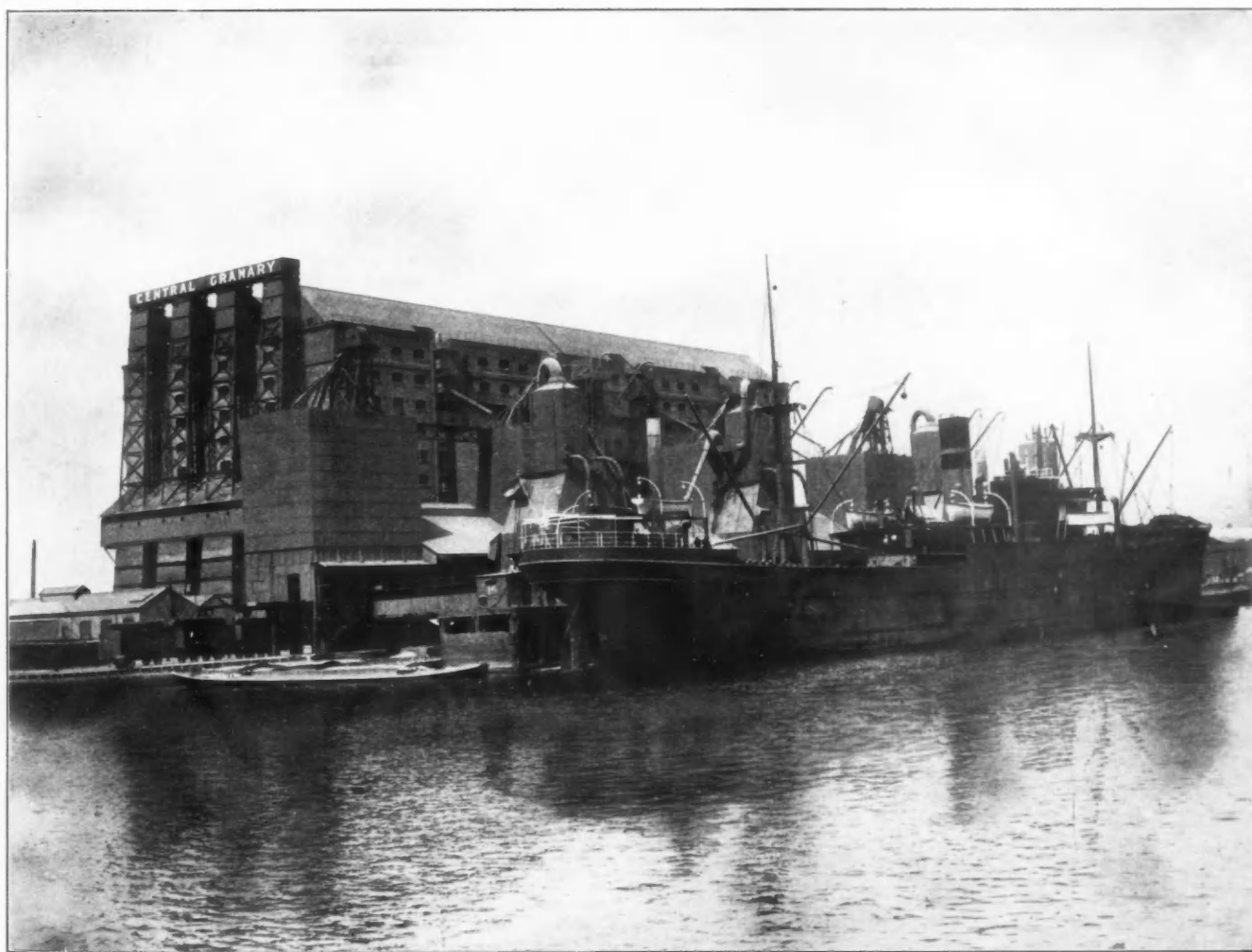
THE THAMES FROM TROODENHAM TO THE MOUTH



The Port of London



Head Offices of the Port of London Authority.



A Granary in the Port of London, with Ship Discharging by Pneumatic Elevators.

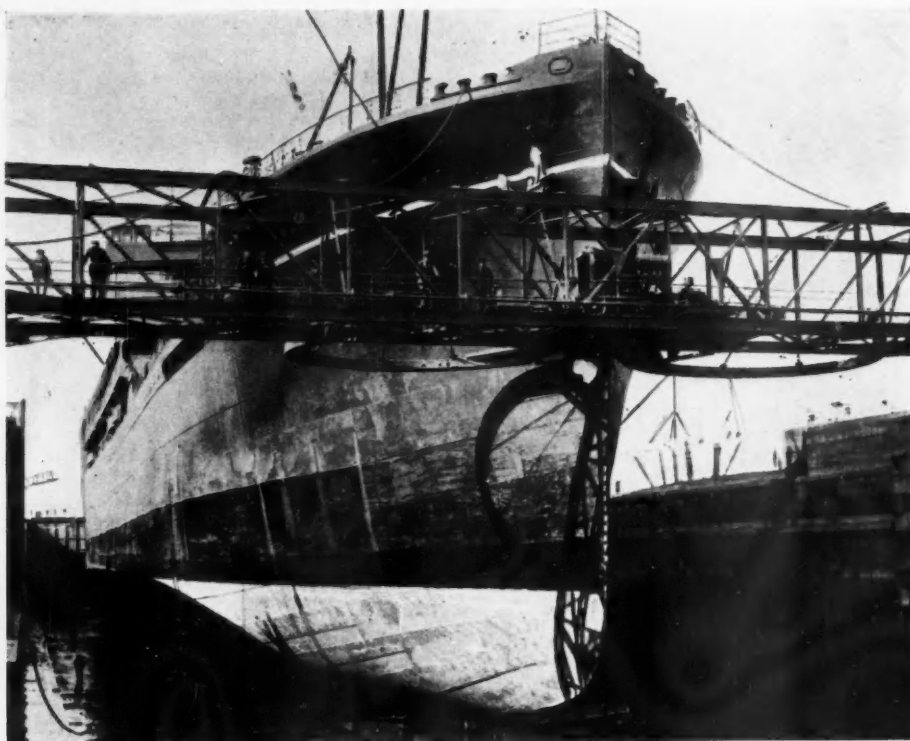
The Port of London—continued

4,578-ft. long and has a width of 710-ft. at the eastern end, decreasing to 500-ft. at the western end.

On the north side of the dock are six double-storeyed sheds, the ground floors of which are used for goods in transit and the upper floors for storage purposes. A verandah is provided on the upper floor adjacent to the quay to which goods may be passed direct from vessels, barges or railway wagons for storage purposes. From this verandah they are carried by under-slung cranes, with which each shed is equipped, to any part of the upper floors. The under-slung cranes are the most up-to-date form of internal warehouse equipment; five motions are possible: hoisting, slewing, traversing, travelling and derricking. The cranes have a capacity of one ton and their jibs have a reach of 26-ft. from the centre of the crane. The control box, in which the driver is accommodated, travels with the crane.

The south side of the dock is laid out in an entirely different manner. Seven dolphins, each 520-ft. long and 22-ft. wide are placed at intervals at a distance of 32-ft. from the quay wall. Vessels are berthed on the outside of the dolphins on which are the electric cranes used for discharging and loading operations. Barges lie between the dolphins and the quay and on the outward side of the vessel; thus discharging or loading can proceed simultaneously from the vessel direct to the quay to barges lying on the quayside of the dolphins and the barges on the outside of the vessel. The transit sheds which line the quays are provided with facilities for rail traffic on both sides and with cartage areas at each end. There are 46 electric luffing cranes of three tons capacity at a radius of 60-ft. on this side of the dock alone, and in addition the dock is well equipped with electric runabout cranes and electric trucks.

At the western end of King George V. Dock is a dry dock 750-ft. long, and is constructed so as to permit of lengthening if required. The width at the bottom is 100-ft. and the depth on the blocks 33-ft. 6-in. below the impounded water level of the wet dock. The entrance to the dry dock is closed by a floating



New Dry Dock at Tilbury, shewing "Leading-in Girder" and Mechanical Bilge Blocks.

caisson, and it can be pumped dry in three hours by electrically driven centrifugal pumps which are installed in a chamber constructed beneath the quay. Flooding operations by means of sluicing take one and a-half hours.

The King George V. Dock has been a most valuable addition to the accommodation of the port, and during the first ten years of its existence it was used by 7,050 vessels representing 26,500,000 net registered tons.

Tilbury Docks.

The Tilbury Docks are the first docks in the Port of London on approaching from the sea, and were opened in 1886. They were constructed at a cost of over £2,000,000, but in recent years a further £2,500,000 has been spent in providing a new lock entrance, a new dry dock, extensions and other improve-



King George V. and Royal Albert Docks.

The Port of London



General View of the Royal Albert Dock.



One of the Special Berths (Royal Victoria Dock) in the Port of London for the discharge of South American Meat.

The Port of London—continued*Tilbury Docks.*

ments. The general arrangement of the docks consists of a main dock with three branch docks entered from a tidal basin accessible at all states of the tide and by the new entrance lock 400 yards above Tilburyness, which was brought into use two years ago. The new entrance lock is 1,000-ft. long and 110-ft. wide, and is capable of accommodating the largest vessel afloat.

The newest of the dry docks at Tilbury is 750-ft. long and 110-ft. wide, and is so constructed that it can be readily extended when necessary, without interference with its use, to a length of 1,000-ft. In many respects the equipment of this dry dock is in advance of any other in the world. Mechanical bilge blocks obviate the use of the usual wood shores and a "leading-in girder" automatically ensures the centralising of a vessel when floating in and being lowered on to the keel blocks.

Vessels that use the Tilbury Docks trade principally with Australia, New Zealand, India, China and other Eastern lands. Much of the incoming cargo is discharged overside into barges and lightered up-river to the Port Authority's warehouses and elsewhere. Large quantities of goods are also delivered to railway trucks alongside the discharging berths or to motor transport for delivery direct to merchants and manufacturers' premises. There are over 35 miles of railways in the Tilbury Docks.

In the river off Tilbury, where deep water in a sheltered position is available, is a well-equipped railway connected cargo jetty. The accommodation consists of a double-deck jetty, 1,000-ft. long and 50-ft. wide, parallel to and at a distance of 160-ft. from the shore, to which it is connected by a curved approach viaduct. The upper deck of the jetty is equipped as a quay with cranes, railway trucks, capstans and bollards, and the space between the upper and lower decks has been enclosed to form a transit shed.

With the opening of the Tilbury passenger landing stage last year London now has unrivalled facilities for passenger traffic. The landing stage is a floating structure 1,142-ft. long and has ample access by bridges and gangways for vehicles as well as for passengers to the shore, where there is a commodious Customs Hall for the speedy examination of baggage. The largest liners afloat can lie alongside this stage at any state of the tide. The London, Midland and Scottish Railway Company's Riverside Station adjoins the baggage examination hall. There are excellent train services to London termini, the Midlands and others parts of the Kingdom.

Reference has been made to the lighterage of goods up-river to the Port of London Authority's warehouses. Apart from the accommodation in the upper docks, the Authority have large warehouses in the City.

At Cutler Street, where there is a floor area of 15 acres, the principal articles stored are tea, Oriental carpets, silk, ostrich feathers, drugs and cigars. There are also works of art and

curios, including carved ivories, figures, bronzes, lacquerware, Chinese porcelain and Japanese ware and pictures. Prior to the public auction sales these goods are laid out for inspection and prospective buyers of all nationalities throng the showrooms.

The Commercial Road Warehouse was built as a depot for goods imported and exported from Tilbury Docks. It is still largely used for this traffic, and in addition large stocks of tea are stored there.

The authority maintain a cold store at West Smithfield adjacent to the London Central Meat Market, in which are housed stocks for emergency market requirements.

Weser River Shipping in October, 1931

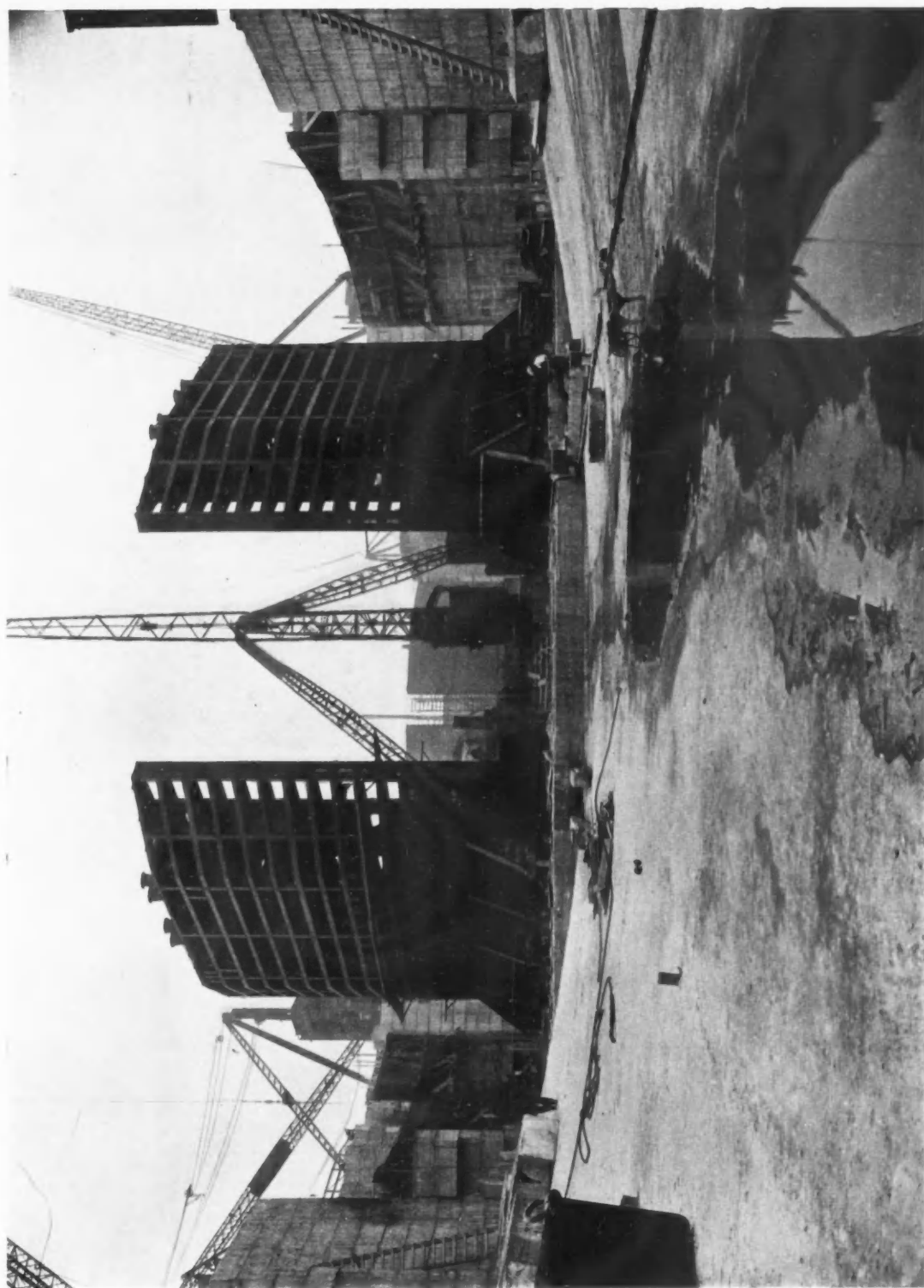
A further deterioration in water conditions on the Weser took place in October. On the Upper Weser the water level during the whole month did not permit full loading of the small 1.85 metre draft barges. Full loads were only possible on the last day of the month on the Middle Weser. Consequently it was necessary to lighten coal and potash barges coming from the Canal at Minden, otherwise full utilisation of the barges had to be sacrificed from the Ruhr district, Hanover and Hildesheim.

The average draft depth on the Upper Weser was 1.34 metre (1.66 metre in September) 1.67 metre (1.99 metre) on the Middle Weser, 1.21 metre on the 10th November on the Upper Weser and 1.56 metre on the 11th and 12th November on the Middle Weser being the lowest draft depths of the month.

Goods traffic through the Bremen Weser Lock, with 152,100 tons, exceeded that of September by 10,500 tons. Due to larger shipments of coal and potash 9,500 tons of this fell to down-stream traffic which was 119,600 tons. Upstream traffic was 32,500 tons, or 1,000 tons more, chiefly due to larger grain shipments, also rice and phosphate, which were not shipped in September. Timber, flour and coals, on the other hand, decreased. Down-stream traffic lost 47,800 tons in comparison with October, 1930, due chiefly to reduction in gravel and stone shipments, upstream 2,500 tons more were loaded.

In the months from January to October, 1931, the total amount loaded, with 1,338,800 tons, was 441,800 tons, or almost 25 per cent. less than in the previous year. Of this decrease 402,000 tons fall to downstream traffic (28 per cent. less) and 39,800 tons upstream traffic (13 per cent. less).

The Port of London.



The Lock Gates for Tilbury Dock during Construction.

Bombay Port Trust

At a meeting of the trustees of the Port of Bombay held on 17th November, 1931, the following were the main items of business disposed of:—The Board considered and adopted the recommendations of the Finance and General Committee regarding acceptance of tenders for supply of miscellaneous stores of the aggregate value of Rs.3.58 lakhs for Port Trust requirements during the year 1932. In the majority of cases the accepted rates were lower than those quoted under the current year's contracts.

A contract for supply of 25,000 gallons of petrol during the year 1932 was placed with the Indo-Burma Petroleum Co., Ltd.

The Board approved a supplementary list of Fire Insurance Companies for inclusion in the list of companies approved by the trustees for the purpose of insurance of lessees' buildings under the conditions of the lease.

Two 20-year leases of small plots of land on Colaba Causeway and on Frere Road near the Prince's and Victoria Docks Main Gate were granted to the Burmah-Shell Oil Storage and Distributing Co., of India, Ltd., for petrol service stations.

The following table shows imports and exports at the Port of Bombay:—

	1930			1931		
	Quarter ended 30th Sept.	Import Tons	Export Tons	Quarter ended 30th Sept.	Import Tons	Export Tons
Docks ...	385,294	553,031	938,325	397,952	447,100	845,052
" (trans-shipment)	46,820	33,463	80,283	49,651	26,151	77,802
Bunders ...	139,016	48,564	187,580	139,321	21,460	160,781
Total	571,130	635,058	1,206,188	586,924	496,711	1,083,635
Total from 1st April to 30th Sept.	1,254,357	1,298,838	2,553,125	1,321,558	1,046,488	2,368,046

The following table shows vessels, other than ferry steamers, hired transports, Government vessels and country craft, which entered and left the Port of Bombay:—

	1930		1931	
	Quarter ended 30th Sept.	Nett register tonnage	Quarter ended 30th Sept.	Nett register tonnage
(a) ENTERED:—	Number		Number	
Vessels engaged in foreign trade ...	197	748,549	182	741,988
Vessels engaged in coasting trade ...	237	321,572	235	357,432
Total from 1st April to 30th September ...	1,137	2,325,086	1,141	2,372,743
(b) CLEARED:—				
Vessels engaged in foreign trade ...	152	583,913	141	605,294
Vessels engaged in coasting trade ...	291	510,691	291	503,080
Total from 1st April to 30th September ...	1,119	2,341,414	1,147	2,399,711

At a meeting of the trustees of the Port of Bombay held on 1st December, 1931, the following were the main items of business disposed of:—

Government notifications granting the chairman, Mr. W. H. Neilson, O.B.E., leave preparatory to retirement with effect from 7th December and appointing Mr. W. R. S. Sharpe, M.Inst.T., to succeed him as chairman were recorded. Mr. Sharpe was elected to represent the Bombay Port Trust on the Local Advisory Committees of the G.I.P. and B.B. and C.I. Railways, on the Executive Committee of the Infant Welfare Society and on the Committee of the Indian Sailors' Home.

Annual contributions of Rs. 25,209 towards the maintenance of St. George's Hospital and of Rs. 6,699 to the Nursing Fund of the Hospital, calculated according to the rules laid down by Government, were sanctioned for the triennium 1931-34.

The following amendments of the Docks and Bunders Scales of Rates and of the Warehouse By-laws were sanctioned:—

(1) To provide a reduced wharfage rate on exports of empty drums and tins to Coastal ports;

(2) To provide for an enhancement of the docks unloading charge on goods carried by motor lorries to offset the heavy cost of maintenance of Port Trust roads due largely to the persistent overloading of the lorries;

(3) To provide for stamping of docks delivery orders covering transfers of title in goods.

On conclusion of the ordinary business before the meeting, the following resolution proposed by the Senior Trustee, Mr. Lalji Naranji, seconded by Sir Ernest Jackson and supported by Messrs. Meyer Nissim and Syed Munawar, was carried by acclamation:—

The Trustees desire to place on record their great appreciation of the valuable services rendered by Mr. W. H. Neilson to the Port of Bombay during the 8½ years he has filled the office of chairman.

Throughout the greater part of Mr. Neilson's tenure of office the port has been faced with many problems and anxieties arising from the world-wide depression in trade and finance and it is largely due to his wise and far-sighted administration and consistent enforcement of economy that the port has been enabled to conserve its resources and afford relief to trade by reduction of charges at a time when such relief was doubly welcome.

Mr. Neilson's unfailing courtesy and tact and his consideration for the opinions of others have endeared him to his colleagues on the Board while his active and sympathetic interest in all matters pertaining to the welfare of the staff has earned the affection and respect of the Board's employees of all grades.

The Trustees great regret that circumstances of health necessitate Mr. Neilson's retirement before the expiry of his final extension of office and they take this opportunity of wishing him a speedy restoration to health and a full measure of happiness and prosperity in his well-earned retirement.

The Port of New Orleans

THE tremendous importance of the inland waterways to the Port of New Orleans is again shown by figures released by the Dock Board. During October 388 inland water craft having a total tonnage of 154,086 tons arrived in port. This was an increase of 119 vessels and 50,821 tons over October, 1930.

The Industrial Canal again showed greatly increased activity. Vessels numbering 1,362 and having a total tonnage of 451,850 tons used this facility, being an increase of 733 vessels and 168,544 tons.

There were increases in several commodities moving over the docks during October, 1931. Wood and paper imported increased 3,513 tons. Among the exports vegetable food products increased 8,825 tons; chemicals increased 1,212 tons, and ores, metals and their manufactures increased 311 tons.

During the first ten months of the current year 2,493,411 bags of Brazilian green coffee were received at this port, an increase of 340,062 bags over the same period of last year.

Receipts of mild coffee during the ten months totalled 270,354 bags.

The Board's conveyors handled 1,176,657 bunches of bananas in October, 1931.

There were 193 arrivals of sea-going vessels during the month. Departures totalled 200.

The seagoing vessels which arrived had a total tonnage of 777,537 tons. The gross tonnage of vessels using the public wharves was 677,902 tons.

Of the seagoing vessels which arrived during the month more than 57 per cent., representing the same percentage of total tonnage, flew the American flag. Honduras was second in number of ships and third in tonnage. Great Britain was third in number of ships and second in tonnage.

The following is a tabulation of the number of seagoing vessels, showing gross tonnage and arranged by nationalities, which arrived during October, 1931.

Nationality.	No. of Vessels.	Gross Tonnage.
American ...	111	444,509
British ...	13	92,410
Brazilian ...	2	7,126
Belgian ...	1	4,965
Dutch ...	3	19,463
Danish ...	3	9,742
French ...	3	12,639
German ...	9	40,227
Honduran ...	28	76,207
Italian ...	2	13,308
Japanese ...	1	7,267
Norwegian ...	11	37,920
Nicaraguan ...	4	4,997
Panamanian ...	1	668
Spanish ...	1	6,089
	193	777,537

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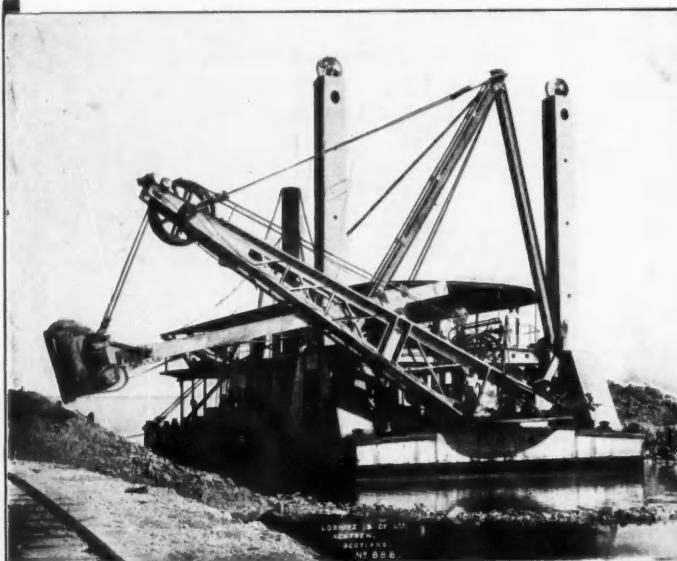
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Notes from the North

Morpeth Dock Improvements.

WORK has been started on the Morpeth Dock improvements at Birkenhead for the Great Western Railway. They include the supply and erection of one 30-cwt. jib electric crane, and the work will be carried out by a Lanarkshire firm; while the supply and erection of new steel roofing and contingent works will be done by a Walsall firm.

Lower Master Portage.

Mersey Docks and Harbour Board have adopted revised master porters' rates in respect of plums, green, in packages. The reduced rates will come into operation in the early New Year.

Ribble Dock Traffic.

The traffic returns of the Ribble Dock Committee show that 130 vessels berthed at Preston Docks in October. The total imports and exports was 93,820 tons, imports were 70,587 tons and exports 23,233 tons, and the revenue £21,910. The number of animals landed was 6,162.

Dock Board Veteran.

The veteran chairman of the Mersey Docks and Harbour Board, Mr. Thomas Rome, now in his 79th year, was re-appointed an elective member on December 12th. His association with the Board goes back to 1893. Twelve years ago he was appointed chairman on the death of Sir Helenus Robertson, and held the position for nearly ten years. During his chairmanship the Board purchased 170 acres of the Vyrer land, on the Birkenhead side of the Mersey, for £25,000, thus adding to their estate. Mr. Rome is the son of a shipowner and became a director of the Pacific Steam Navigation Company in 1899.

£200,000 Cut on Bidston Dock.

Forced by the necessity for economy, the Mersey Docks and Harbour Board has decided to modify its principal capital works scheme, that for the construction of the Bidston Dock, by curtailing the estimated expenditure by over £200,000. The plans as drafted provided for a big increase in Birkenhead's dock accommodation, because it meant not only a large and up-to-date new dock in place of the old Wallasey Pool, but provided facilities for attracting new industries, which could be developed on adjoining dock sites. Obviously, the proximity of a large dock or docks offering additional conveniences to manufacturers would be a factor in considering the taking up of a site. The Bidston Dock is being constructed on the site of the old Wallasey Pool, at the extreme north-westerly end of the Great Float, Birkenhead. The new dock, which has been under construction above a year, will mean the development of what was before a derelict area on the site of a sheet of water which was formerly only used for sculling races and the mooring of small boats.

Moving the recommendation of the Works Committee, which was in the following terms: "That the scheme for the construction of Bidston Dock be modified by reducing the length of the north and south quay walls to 1,000 feet, thereby reducing the estimated cost of the work from £913,188 to £708,675, to which the Unemployment Grants Committee have agreed," Mr. H. F. Fernie said the committee intended that the Bidston Dock be altered so as to be 1,000 feet long instead of 1,600 feet. The matter had been before the Unemployment Grants Committee for some time, and they had now agreed to it. It would mean a saving in capital, and also the extra interest would be reduced from the time when the work was finished. Replying to the question as to the number of men likely to be thrown out of work as a result of the change, Col. T. L. Norfolk (Dock Board Engineer) stated there will be an increase in the number of men employed. The work will be finished in November, 1932, against May, 1933.

The dock has been excavated to the full width intended, but the end towards Bidston will have an embankment which, at some future time, can be removed and the dock extended without much difficulty. The new dock will be joined to the West Float by the 100-ft. passage constructed a few years ago, and which is spanned by the latest horizontal swing bridge. It was at the Victoria Dock, by the way, that the terrible disaster occurred late on the wintry night of March 6th, 1909, when the dam which kept back the water of the East Float collapsed and overwhelmed fourteen men working in the cavity behind the dam.

Weaver Navigation.

Weaver Navigation Trustees, whose annual meeting was held a few days ago, have experienced decreased revenue owing to the continued adverse trade conditions. The tonnage carried over the navigation in 1929 was 798,010, yielding a revenue of £74,319. Last year the tonnage was 685,873 and the revenue

£61,869. The approximate total revenue for the present year (1931) is £53,036. During the year the mortgage debt has been reduced to £58,736, of which £48,006 was guaranteed by the Cheshire County Council, leaving £10,640 not guaranteed. The annual debt charges on the navigation, which were £16,156 in 1896, have since that date been reduced to £4,685. Owing to the continued fall in the toll revenue, reductions amounting to £10,400 have been made in the salaries of the staff and the workmen on the navigation and at the docks. Investigations are being continued with a view to further economies. The special repairs on the navigation included the repair of the Dutton Lock gates at a cost of £988 and the steam hoppers at £1,344. Regarding excessive loads crossing Weaver swing bridges, the trustees had decided to insure against such risks.

Some time ago it was suggested that a new bridge or substantial alteration should be made to the existing bridge at Hartford. Alternative schemes have been prepared for the crossing of the navigation by a high-level viaduct, a steel bridge of 140-ft. span, a similar bridge with a 60-ft. span, and alterations to the existing bridge. Owing to the financial conditions the matter has been postponed for the time being.

Liverpool Floating Bridge.

The general managers of the Birkenhead and Wallasey ferries are both entirely opposed to the suggestion that both tracks of the floating bridge at the Pier Head, Liverpool, should be utilised for up traffic coming from the ferry boats to Liverpool. They say that this would only cause delay to the down traffic to the steamers and congestion at the pierhead. Speaking at Liverpool Chamber of Commerce, Mr. R. V. Edwards (chairman of the Transport Committee) said that whilst Birkenhead drew attention to the fact that the floating roadway was owned by the Mersey Docks and Harbour Board, he ventured to assert that the traffic was controlled by the Chief Constable of Liverpool. Apparently traffic to the coastwise steamers at Liverpool was the only obstacle to progress.

Progress of Mersey Tunnel Works.

Nearly 600 men are still at work on the Mersey Tunnel contracts. Another year is considered officially to be ample for completing not only the concrete work but also the ventilation buildings and electrical equipment, and it may therefore be assumed that traffic will be using the tunnel before the year 1932 is out. Preliminary plans for the construction of six ventilation stations, three on either side of the river, have been passed by the Mersey Tunnel Joint Committee. In these stations giant fans will pump air into the great under-river traffic way or exhaust out the fumes arising from the traffic. On the Liverpool side the stations will be at George's Dock, Bretherton Buildings, and New Quay. The tender for electrical equipment for the ventilation plant, submitted by Metropolitan Vickers Co., of Manchester, for £80,000, has been accepted.

The three main tunnel contracts have been completed and work is now proceeding with interior concreting, footpath construction, and ventilation work. We understand that on the financial side only in one instance has the engineering estimate been exceeded. The exception applies to the construction of the under-river section, which at present shows an excess expenditure of 3 per cent., or £37,300. Up to date, close on £3,500,000 has been spent on the tunnel works.

As regards the ventilation system, the longitudinal shafts running through the tunnel will deliver 2,750,000 cubic feet of air per minute, and, as there will be stand-by shafts, the total capacity can be readily doubled. The fresh air will travel through these shafts at the rate of from 40 to 50 miles per hour, while the foul air will be simultaneously exhausted.

Birkenhead is becoming apprehensive as to the fate of the cross river vehicle ferry services, now that the tunnel is nearing completion. Under the Mersey Tunnel Act, the Tunnel Committee is invested with power to take over the control—not the actual working—of the whole of the ferries undertaking, should they desire to do so after the opening of the tunnel. Some months ago it was agreed to assert this right as from the date of the opening, despite the protests of the Birkenhead representatives who, on behalf of the Corporation, appealed for Birkenhead to be allowed to retain full possession of the passenger section. Although the passenger service is not of itself a paying concern, the local view is that Birkenhead needed a free hand to run the service in close conjunction with the very profitable 'bus services, on which traffic is encouraged by means of cheap combined ferry and 'bus fares. Mersey Tunnel Joint Committee has decided that it cannot agree to a motion that four members negotiate with the Birkenhead Corporation to report on the question of allowing Birkenhead to retain full control of the passenger service. While the Birkenhead members are keen on retaining the passengers' ferries, the Liverpool members of the committee are equally keen that the terms of the Tunnel Act should be carried out.

*Notes from the North—continued***Excitement in Heysham Harbour.**

Pontoons in Heysham Harbour were damaged during the work of raising the L.M.S. Railway steamer "Duke of Lancaster," which sank following a fire. Lashed by steel hawsers to lifting camels on pontoons alongside her, she was dragged out by the tug "Wyvern" and the harbour ship "Ranger" after a great struggle. As the tide rose the two 600-ton pontoons were pulled over by the weight of the sunken ship until they were awash on one side. They were forced against the "Lancaster's" side with terrific force, and the woodwork on the upper decks was shattered. A few days later another attempt to raise the steamer was made, but this also failed, when two hawsers, which were being used to lift the vessel, snapped under the immense strain. Rumours that the £250,000 ship is to be blown up and sold as scrap are, however, strongly denied from abandoning the struggle to raise the "Duke of Lancaster," the efforts to refloat her have been intensified. The ship is no longer jammed against the quay, and part of her bilge keel has been cut away by divers. It is not known when the next attempt to refloat the ship will be made.

Liverpool Bunkering Charges.

Representations have been made to the Mersey Docks and Harbour Board to claim relief from dock dues on steamers calling at the port for bunkering purposes. The Board has replied that concessions cannot be granted. The subject is revived by Mr. R. V. Edwards, chairman of the Transport Committee of the Liverpool Chamber of Commerce, who points out that the case for relief was emphasised recently by a steamer laid up at Barrow for some considerable time and now coming into commission. She required 1,000-1,200 tons of oil bunkers; all arrangements were made as to price and berthing accommodation, but unfortunately the dues on the steamer prevented that being carried out. The dues would have added another 5s. to the cost of the oil. The result was that the steamer would now take her supplies in a foreign country. Not only did the English company lose business, but it would have been an advantage to the pilotage service, the tugs, and a certain amount of dues would have resulted to the Mersey Docks and Harbour Board. That was all loss to the port. Colonel Buckley (who is a member of the Mersey Docks and Harbour Board) states the Board could not run the port any cheaper. Liverpool charges compared very favourably with other ports in the country.

Mersey Revetment Incident.

Mersey Docks and Harbour Board salvage and engineering staff had an anxious time recently in rescuing a floating crane from the revetment in the Crosby Channel, River Mersey. When news was received at the docks office that an unknown vessel was lying helpless on the revetment, the Docks Board steamer "Salvor" proceeded to the scene for the purpose of rendering any assistance needed. This proved on examination to be a floating crane, 120-ft. in length, and its attendant tug boat, the "Wyvern." It had left Liverpool in tow earlier in the day destined for Heysham Harbour to assist in the lifting of the sunken railway steamer "Duke of Lancaster." The crane was tugged off the revetment with the aid of the rising tide and was towed back to Liverpool for examination. The "Salvor" stood by for some time, and at high water the tug and the camel refloated. It was found that the tug had lost her starboard anchor and that a portion of the towing wire had become entangled in the propeller. The wire had to be cut. Two plates on the camel were also damaged. While the "Wyvern" and her tow were lying helpless, the other tug and camel were at anchor, and later, after being in the Mersey Channel for over 12 hours, set off for salvage work at Heysham.

Whitehaven Harbour.

Whitehaven Harbour Commissioners have decided that for the whole of 1932 the dues on coal nuts carried coastwise be reduced to 3d. per ton, and the dues on "peas" and small coal carried coastwise be reduced to 1½d. per ton. The chairman, Mr. J. H. Cant, said these were very substantial reductions which might help the local collieries and incidentally also help the Harbour Board.

Morecambe Old Harbour.

Sanction having been received to borrow £23,000 for the purchase of the land of the old harbour, and also £9,750 for the construction of the new promenade in front of the old harbour, Morecambe Corporation intends to put the new promenade works in hand immediately. Through an Act of Parliament in 1928, the Corporation secured the necessary powers to purchase from the L.M.S. Railway for £34,000 the old harbour itself now used as a ship-breaking depot. It is expected that notice to quit will be given to the tenants of the land in front of the old harbour, and that the Corporation will proceed to decide on a scheme, which will include an open-air bathing pool, floral hall, medicated baths, gardens, etc.

Personal.

Captain Ivor Roberts, marine superintendent for the London Midland and Scottish Railway at Heysham, has been appointed their marine superintendent and harbour master at Holyhead, as from January 1st, 1932, in succession to Captain Hill, retired. He has had distinguished war service and was awarded the O.B.E.

Help from Port of Liverpool.

The Mersey Docks and Harbour Board is making a contribution of £300 per annum for two years towards the funds of the Lancashire Industrial Development Council for the establishment of a central bureau in London. Mr. Hugh L. Roxburgh (chairman of the Docks Board Finance Committee) states that the Central Bureau would really be a clearing house which would have general information with regard to rates, possible sites, road, rail, and water facilities. The Board was represented on the Council by the chairman.

Manchester Ship Canal.

Manchester Ship Canal Company, for the first time for many months, reports an increase in the amount of the monthly traffic receipts, which in November amounted to £105,514, compared with £100,484 in the corresponding month of last year. Returns, however, when reviewed over a period of 11 months make depressing reading. Revenue up to 30th November amounted to £1,064,925, a decline of £111,648.

When considering the gross traffic revenue figures, it should be borne in mind that reductions are in some measure offset by economies. Important savings have been effected during the year by the application of the National Wages Board award, affecting clerical and operating railway staffs to the corresponding grades in the company's service. There has also been introduced a system of short-time working.

Negotiating Difficult Times.

Speaking at the meeting of the Mersey Dock and Harbour Board, on 17th December, Mr. Thomas Rome, said, with so many of the vessels regularly trading to this port laid up, their revenue was bound to suffer, but thanks to the guidance of Mr. R. D. Holt, they had come through this bad year remarkably well. They might congratulate themselves on having a man of such energy and resolution as Mr. Holt to take the helm in this crisis. Mr. Holt said things were so bad that it did not matter what they did; but this year had not been exactly like that. There had always been grounds for hope if they really put their backs into the work, and there was always a chance of getting some advantages out of it that they could not get, if they were slack and negligent. It had been a year in which on more than any occasion, it had been necessary to put in a lot of hard work, in the hope and belief that some result would accrue.

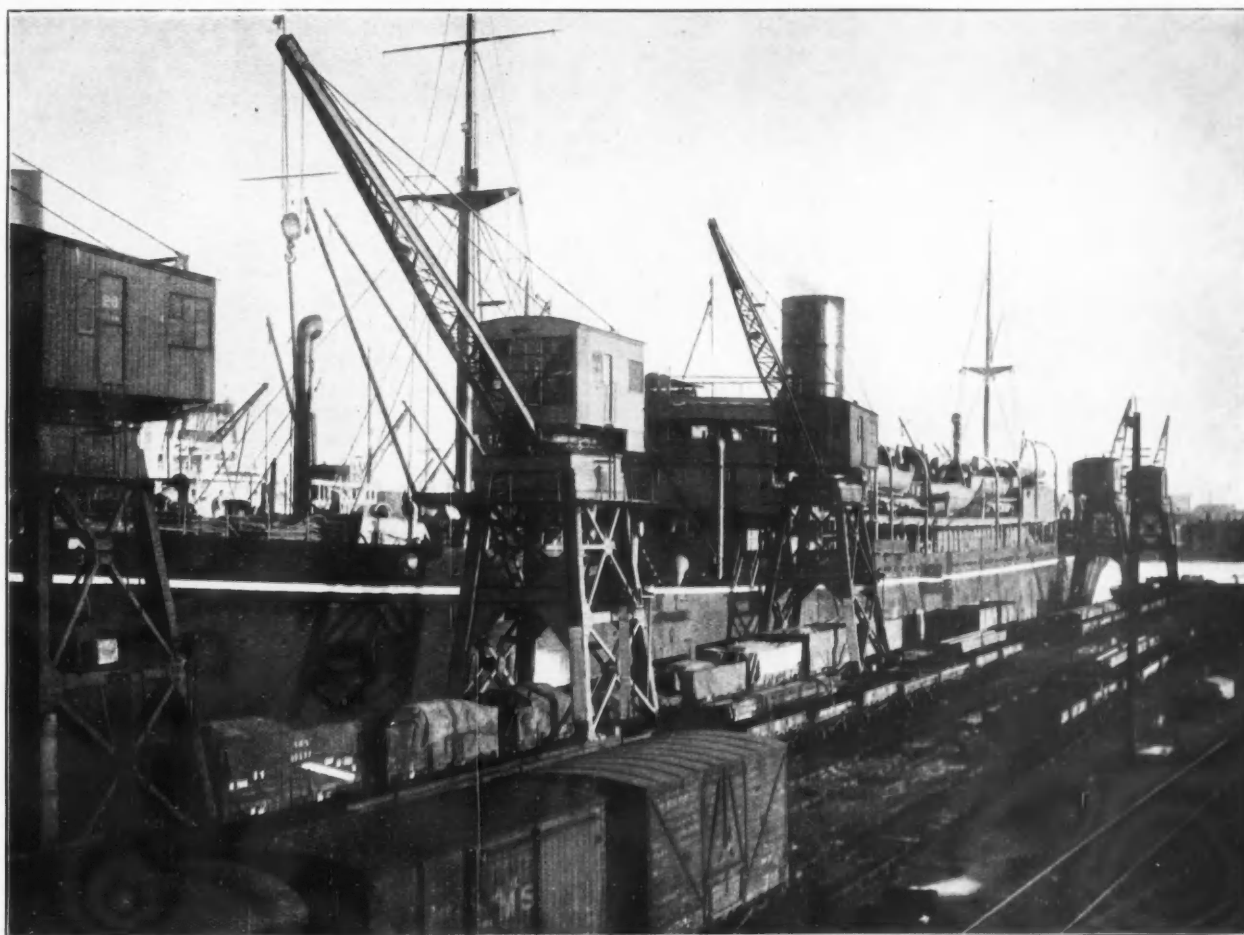
Mersey Sewage Problems.

For many months the municipal authorities on Merseyside and the Mersey Docks and Harbour Board have been grappling with Mersey sewage problems. Another development took place on 17th December when representatives of sixteen or seventeen Merseyside riparian authorities met in conference at Liverpool, and unanimously approved, in principle, that an investigation should take place on the subject of sewage disposal, such investigation to be carried out in conjunction with the Mersey Docks and Harbour Board by the Department of Scientific and Industrial Research.

The object of the investigation will be to ascertain whether or not the discharge of crude sewage into the Mersey has a deleterious effect on the river, its channels and banks. It was also decided that the Government should be approached with the view of its bearing a proportion of the cost of the investigation, on the ground that the result would be of national, as well as local, value.

Pending the investigation a strong view was expressed by the conference that the Mersey Docks and Harbour Board should remove its veto on any existing schemes of sewage disposal. Otherwise, it was felt that the development of Merseyside local authorities would be unnecessarily retarded for two or three years, during which time the investigation was being made. As far back as 1927 the Mersey Dock Board lodged petitions against the Liverpool and Birkenhead bills of that year, on the ground that the extension of those areas would increase the discharge of crude sewage into the Mersey, the attitude of the Dock Board being that such sewage, without further treatment, should not be permitted to enter the river. Local authorities then undertook in conjunction with the Dock Board and other authorities associated with the board, to contribute to the cost of an investigation by an independent tribunal to ascertain the effect of Merseyside sewage disposal. In view of that undertaking, the Dock Board and the Manchester Ship Canal withdrew their opposition to the bills.

North-East Coast Notes.



The London and North-Eastern Railway Company's Middlesbrough Dock.

Tyne Coal Trade's Troubles.

WHEN Mr. H. P. Everett was re-elected Chairman of the Tyne Improvement Commission in the middle of November he referred to the many difficulties with which trade on the river had been confronted. "The coal trade, upon which we principally depend, has had a terrible year," he said. "We shall be fortunate if our shipments reach 14 million tons—a reduction of $3\frac{1}{2}$ million tons on last year. This, of course, has had its reflection in our finances, and, although our income may be lower by £80,000 to £100,000, our actual deficiency will not reach anything like that amount, as our diminished receipts have been counterbalanced by savings."

"This year has seen a decision of the Board which I regret, namely, the abandonment—I hope temporarily only—of the scheme for the acquisition of Tyne Dock and the erection of deep-water wharves at Jarrow Slake. It was one of the most ambitious schemes of port development projected by this Board and would have placed us many years ahead among the ports of the United Kingdom."

"At some future date the Commissioners may deem it desirable to proceed with this development with or without outside help, when they will find much useful data already in hand to help them."

Mines Act Handicap.

Referring to the Mines Act, he said he had hitherto refrained from condemning that Act as he wished first to see how it worked. "I have now come to the conclusion that it has been a disaster to this area. I realise that part of our lost trade is attributable to general depression, but not all. A favourite phrase has recently been in many mouths, 'economic blizzard'; that, I assert, has been used too freely to cover up blunders and avoidable errors. I am convinced that but for the Mines Act our export figures would have been much higher." He asked how British coalowners could compete abroad when our prices were fixed. Further, he observed, it would appear that in all negotiations between Government departments and masters and men the interests of the ports and of all the industries bordering upon them were entirely overlooked. The coal trade, he continued, was something more than miners' wages and coalowners' profits, and the sooner that was realised the better for all. "At any rate, this authority is not going to sit down to it. We intend to exert pressure when we think it will be

of value and invoke all possible influence in order that our normal shipments may be restored, and to this end I shall ask for your support."

Newcastle's Loss of Dues.

The quaymaster has reported to the Trade and Commerce Committee of the Newcastle Corporation that two-thirds of the cargoes unloaded by ships using the Newcastle Corporation quay go overside into lighters, the Corporation, therefore, securing package dues on only one-third of the cargoes discharged.

Statistics showed that last year 1,534 vessels, aggregating 1,003,830 net registered tons, used the Corporation quay. They discharged on to the quay and paid package dues on 521,872 tons of cargo, while about double that amount went into lighters and avoided package dues. The Committee decided that, since the Port of London and other port authorities had been able to counter similar practices by levying smaller dues for lighter unloading, Newcastle should inquire how to secure similar legal authority.

Some Smart Work.

A cargo of 2,620 tons of coal, plus 80 tons of bunkers, were loaded under three hours at Tyne Dock in the steamer "Lotte"—probably the quickest dispatch recorded for this place. The vessel arrived at 10 a.m., started loading at 10.20 a.m., and finished at 1.55 p.m. She sailed at 2.20 in the afternoon.

The "Nevada" was recently sent to Tyne Dock for 1,000 tons of bunker coal with a request from the agents to do all possible in getting the vessel quick dispatch. The steamer was berthed on arrival and loading began at midnight on Friday, November 20th, and she completed bunkering at 7.30 a.m. on Saturday, November 21st.

A third instance of quick work was the loading of the s.s. "Sudbury" at Pelaw Main Staiths, in the first week of December, with 5,400 tons of cargo and 530 tons of bunkers in 25½ hours from arrival at the staiths to clearing the port.

Blyth Experiment.

At the November meeting of the Blyth Harbour Commissioners it was reported that with a view to obtaining further information with regard to timbers reputed to have the quality of resisting attacks of limnoria, the Commissioners had sanctioned the use of a small quantity of Australian turpentine timber; this will be kept under observation to ascertain how it compares with greenheart, and the experiment carefully watched.

North-East Coast Notes—continued

A most satisfactory report was submitted regarding coal shipments, for it was shown that the October output exceeded those of both 1930 and 1913. The figures were: October, 1931, 445,099 tons; October, 1930, 422,882 tons; October, 1913, 425,488 tons; these show for October, 1931, an increase of 5.25 per cent. over 1930 and 4.6 per cent. over 1913. The figures for the ten months ended October 31st, 1931, were 3,654,591 tons; for the ten months ended October 31st, 1930, 3,995,562 tons; and for the ten months ending October 31st, 1913, 3,978,079 tons, showing a decrease of 9 per cent. over 1930 and 8 per cent. over the figures for 1913. The chairman, Mr. Ridley Warham, congratulated the Commission on such satisfactory results for October.

Tees Commission Finances.

At the annual meeting of the Tees Conservancy Commission in December it was reported that there had been a loss on the year's workings of £19,166, but for economies the loss would have been much greater, for the receipts were down by £40,884. Mr. F. A. E. Samuelson, the chairman, said that the decrease in receipts was mainly due to the decrease in river dues and to the continued trade depression. There was a decrease in the number of ships cleared during the year of 445, and a decrease in the net registered tonnage of 824,300. The decrease in the number of ships was largely accounted for among ships of larger tonnage.

Alderman T. G. Poole, Middlesbrough, was nominated by the Commission as the representative of the North-East Coast Ports on the Executive Committee of the Dock and Harbour Authorities Association.

Wear Trade Growing.

The River Wear Commissioners have had the satisfaction of seeing their coal and coke shipments in October exceed those for the same month in 1930. The figures were: October, 1931, 471,181 tons, and October, 1930, 438,093 tons, an increase of

33,088 tons. The figures for the ten months ended October, 1931, were 3,932,129 tons, and for the ten months ended October, 1930, 3,977,913 tons—a decrease of only 45,784 tons.

An important addition to the coal shipping facilities at Sunderland were made at the beginning of December, when the new £100,000 staith at the South Docks was put into operation. This staith has a capacity for loading one million tons of coal a year, and, with the other staiths at the South Dock, 3½ million tons can be shipped from the place. The total capacity of the River Wear for coal shipping has thus been brought up to 6½ million tons. The staith is equipped with four sets of hoppers and shutes, the shutes having telescopic spouts to prevent coal breakage. There is also a conveyor for bunkering. The quay of the staith was built by Sir William Arrol and Co., Ltd., of Glasgow, and the steel superstructure by the Cleveland Bridge and Engineering Co., of Darlington.

Meeting of the Tyne Improvement Commission.

At the last meeting of the Tyne Improvement Commission for 1931, there were some bright features in regard to the river's trade, although the fact remained outstanding that there had been a very great shrinkage in the coal shipments. From January 1st to November 30th last, the quantity of coal shipped was 12,747,316 tons, compared with 15,761,045 tons in the corresponding period of 1930, a decrease of 3,013,729 tons. Compared with the eleven months of 1913, the reduction is very striking. In that period the loadings were 18,565,090 tons or 5,817,774 tons more than in the past year.

One of the bright features was the very marked increase in the coke shipments in 1931 which are still continuing good. During November coke exported totalled 94,774 tons, compared with 64,564 tons in the corresponding month of 1930, an increase of 30,210 tons equal to 46.79 per cent., while the increase when compared with 1913 was no less than 274.73 per cent. In the last few days of last year, notable coke sales included several thousands of tons of coke nuts to the United States of America.

Aden Port Trust.

The returns for the month of September, 1931, of shipping using the port, are as follows:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	121	461,269
" under 200 tons ...	4	231
Government Vessels ...	4	14,827
Dhows ...	64	1,423
Merchant Vessels over 200 tons ... PERIM.	19	54,610

1930, and of exports Rs.24,73,000 as compared with Rs.34,43,000.

The total value of both imports and exports together was Rs.63,74,000 as compared with Rs.82,59,000 for the corresponding month last year.

Imports during the month were above those for September, 1930, in the case of seeds, skins (raw), sugar, piecegoods (printed or dyed) and tobacco (unmanufactured); and below in

TRADE OF THE PORT.

Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal ...	Tons	1,809	46,694	0	0
Coffee ...	Cwts.	4,071	1,48,803	6,565	2,78,834
Grain, Pulse and Flour ...	"	22,305	1,17,722	17,603	92,202
Gums and Resins ...	"	443	10,409	1,701	39,864
Hardware ...	"	0	2,623	0	5,525
Hides, raw ...	No.	1,360	2,690	3,500	3,463
Oil, Fuel ...	Tons	33,332	9,99,960	0	0
" Kerosene ...	Gls.	12,246	8,875	3,872	3,052
" Petrol ...	"	48	62	3,084	4,655
Salt ...	Tons	0	0	24,280	2,57,860
Seeds ...	Cwts.	8,882	79,300	716	7,373
Skins, raw ...	No.	275,463	1,55,442	1,95,245	1,43,351
Sugar ...	Cwts.	14,576	90,604	13,325	84,862
Textiles—					
Piece Goods, Grey ...	Yds.	3,547,100	5,24,773	32,24,850	4,49,418
" White ...	"	396,787	90,562	1,99,865	49,290
" Printed or Dyed ...	"	670,763	1,35,134	6,83,581	1,72,728
Twist and Yarn ...	Lbs.	143,318	62,210	1,14,156	57,954
Tobacco, Unmanufactured ...	"	837,424	1,32,503	5,63,472	1,06,284
" Manufactured ...	"	40,880	46,745	30,576	33,871
Other Articles ...	No. of Pkges.	51,607	6,73,392	18,487	3,32,733
Treasure, Private ...	—	0	5,72,174	0	3,50,255
Total ...	—	—	39,00,677	—	24,73,574

The number of merchant vessels over 200 tons that used the port in September, 1931, was 121, as compared with 103 in the corresponding month last year and the total tonnage was 464,000 as compared with 407,000.

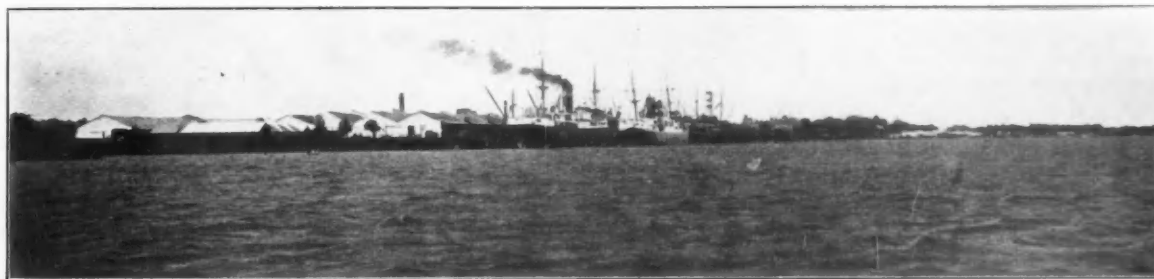
Excluding coal, salt, fuel oil and Military and Naval stores and transshipment cargo the total tonnage of imports in the month 6,400 and of exports 4,100, as compared with 6,200 and 4,600 respectively for the corresponding month last year.

The total value of imports, excluding Government stores, was Rs.39,01,000 as compared with Rs.48,16,000 for September,

the case of coffee, grain, pulse and flour, gums and resins, hardware, hides (raw), piece goods (grey), piece goods (white), twist and yarn, tobacco (manufactured) and treasure (private).

Exports were above those for September, 1930, in the case of gums and resins, sugar, and below in the case of coffee, grain, pulse and flour, hardware, hides (raw), seeds, skins (raw), piece goods (grey), piece goods (white), piece goods (printed or dyed), twist and yarn, tobacco (unmanufactured and manufactured) and treasure (private).

Notes from Far Eastern Ports



View of the Jetties at Chittagong.

Ceylon

Colombo's Foreign Trade.

THE alarming foreign trade depression which has lately been agitating the minds of Ceylon officials was somewhat arrested last month, although even now there is little cause for jubilation. The figures issued by the Colombo Customs show that both imports and exports from Colombo in October rose considerably over those of the previous month. The value of exports of the island increased by approximately Rs.3,000,000, and imports rose by over Rs.2,000,000. The total imports for the ten months of 1931 amounted to Rs.184,965,659, which compares very unfavourably with the figures for 1930 during the same period, which were Rs.260,604,581. Exports during the first ten months of 1931 amounted to Rs.195,446,811, which likewise compare unfavourably with the same figures for the first ten months of 1930, when the total was Rs.278,120,195.

It is interesting to note how the value of rubber has depreciated during 1930. In the first ten months of 1931 the value of the rubber exported from Ceylon amounted to Rs.17,367,091, against Rs.44,561,857 for the same period of 1930. On the import side the striking feature is the economies which are obviously being effected by the inhabitants of the island. Such articles as woollen and worsted manufactures have dropped from a value of nearly Rs.700,000 in the first ten months of 1930 to approximately Rs.300,000 for the first ten months of 1931. This can, to a certain extent, be attributed to the fall in values which has taken place during 1930, but the difference is chiefly due to economy. Silk and satin goods have also dropped very considerably—from a value of Rs.2,300,000 in the first ten months of 1930 to Rs.1,820,000 in 1931. Even food, drink and tobacco values have fallen very considerably, the respective figures for 1930 and 1931 being Rs.121,472,173 against Rs.84,873,911.

The value of motor-cars and other vehicles imported into the island has dropped by a very noticeable extent, the value of the imports for the first ten months of 1931 being practically less than half of those of the first ten months in 1930.

The actual duty collected on all imports during 1931 amounted to Rs.27,250,307, against Rs.32,083,515 during the first ten months of 1930, showing a deficit of Rs.4,832,207.

Export duties have fallen by just over Rs.2,000,000, the figures for 1931 being Rs.7,548,656, against Rs.9,667,645 for the first ten months of 1930.

The total decrease on Customs duties during the first ten months of 1931 compared with 1930 amounts to nearly Rs.7,000,000.

Evolution of Colombo's Shipping.

Colombo Harbour is a haven of refuge. Ocean vessels and small craft find safe anchoring during stormy weather. Ships of all nations visit the famous harbour carrying the royal mails of their respective nations. Every year the tonnage of the ships that enter it adds up to 8,600,000 tons. London has a tonnage of 11,600,000 tons and New York 12,155,000 tons.

The Colombo Harbour has grown from very small beginnings. Percival, in his "Account of Ceylon, 1803," described it as follows: "The Harbour of Colombo is nothing more than an ocean road, affording good and safe anchorage to ships for only four months of the year, from December to April. But about May, when the monsoon sets in on the Malabar Coast and extends its ravages to the West Coast of Ceylon, the harbour no longer affords protection. Vessels then find shelter in the more secure portions of Trincomalee and Point de Galle, and seldom venture to Colombo for the following eight months; Colombo is by this means cut off from any intercourse by sea with the rest of the island for two-thirds of the year."

Galle, at that time the principal port, was both inconvenient and dangerous from the rocks and reefs which existed within the harbour and its entrance.

The Colombo Harbour became increasingly important with the development of the coffee industry in Ceylon. In 1845 the Governor and the Legislative Council, the military, the judges, the clergy and half the civil servants became purchasers of land for planting coffee.

The opening of the Suez Canal in 1869 gave special importance to Colombo as a port. In 1870, on the 10th of February, the first steamer to arrive at Colombo through the Suez Canal anchored in Colombo. The steamer was the British vessel, "William Miller."

The Colombo Harbour became what it is to-day due to building of the breakwaters. First the south-west breakwater was built, and its completion in 1885 changed the former open roadstead into a harbour perfectly sheltered on the south-west or more exposed side.

It is interesting to recall that King Edward VII. laid the first block of the south-west breakwater in 1875. The north-east and north-west breakwaters were taken in hand in 1894 and the new arm of the south-west breakwater in 1910.

Colombo Port Commission Chairman Going on Leave.

At the last meeting of the Colombo Port Commission Mr. M. J. Cary, the senior unofficial member present, referred to the impending departure of the chairman, Mr. B. G. de Glanville, and expressed his appreciation of the firmness and tact with which Mr. de Glanville had dealt with all matters connected with the harbour.

On behalf of himself and the other members, Mr. Cary wished Mr. de Glanville a good leave in England and expressed the hope that he would again return to be the chairman of the Colombo Port Commission.

Colombo Port Commission Personnel.

Mr. G. S. Wodeman has been appointed Principal Collector of Customs (Colombo) from November 25, 1931.

Mr. W. Holmes has been appointed to act as Deputy Collector of Customs (Colombo) from November 25, 1931.

Colombo Harbour Dredging.

A total quantity of 11,050 cubic yards of dredged material, mainly Kelani River mud, was removed by the dredger "Sir William Matthews" near mooring No. 49 at north-west breakwater, and deposited at sea during the month of October. The dredger was at work till October 9, after which date she went alongside the Guide Pier for removal of certain machinery parts preparatory to entering the graving dock for refit and annual overhaul.

Commission on Shipping Conference.

It is understood that the Ceylon Chamber of Commerce is taking steps to collect as much information as possible in order to enable it to make proper representations in connection with the proposal for the appointment of a Commission to enquire into the system of shipping conferences and deferred rebates.

A motion is being submitted to the Ceylon State Council by Mr. G. Robert de Zoysa for the appointment of such a Commission. The question as to the advantages and disadvantages of the present arrangement, and whether the former outweigh the latter, is a matter of great importance to the Chamber of Commerce. Members of the Chamber have been requested to supply the fullest information at their disposal on the various considerations involved.

A sub-committee consisting of the Chamber and the Conference representatives is now enquiring into the question, and a questionnaire has been submitted to the members for the fullest information regarding the principal ports to which shipments are made, the nature of the produce, the approximate tonnage shipped annually by the lines constituting the various conferences or service, and calling for views as to the effects of the system of shipping conferences and deferred rebates.

Notes from Far Eastern Ports—continued.

India

Engineering Feat in Madras Presidency.

The opening out of Cochin Harbour for the trade and commerce of the West Coast of India is recognised as a feat of harbour engineering. What has been thought impossible and impracticable for at least 70 years is to-day an accomplished fact.

Cutting of the bar about 400-ft. wide, dredging and maintenance of the entrance channel free from silt and dredging of the mooring channel inside the harbour were considered almost illusory by the majority of engineers consulted on the subject, but all these problems have been successfully overcome. A record has been set up at Cochin in dredging practically ten million cubic yards of material *in situ* in three successive short dredging seasons.

An extraordinary feature of the work has been the very low cost of carrying it out. The arrangements that were made to protect the foreshore by building diagonal banks of stone are considered by expert engineers as ingenious. It was mainly this work which made practical the main part of the scheme. The channel, which is 11,000-ft. long and 450-ft. wide, had been deepened to 37-ft. at low water, chiefly to provide for silting and avoid the stoppage of traffic, even temporarily.

The New Dock.

A dry dock has been built which is 240-ft. long, 44-ft. wide and 14½-ft. deep over the sill, and can accommodate any of the dredging craft of South India. There is very little leakage into the dock, which has proved completely stable and satisfactory. The total cost of the dock is Rs.4 lakhs. It has already paid for itself by savings on dockings, and the cost of maintenance and repairs is borne by docking fees charged on craft other than those belonging to the port.

Although so much has been done, unless the fourth stage of the scheme, namely, the construction, completely, of the wharves, jetties and railways, is gone through, all the work done during the last few years will become useless. It is said that a comprehensive scheme has been prepared showing the development of the port that will be necessary during the next 40 to 50 years in order that it might deal ultimately with a tonnage of 5,000,000 a year. At present it is proposed to provide for only double the amount of the existing trade.

A feature of the fourth stage of the scheme is that a modern railway station will be built in the centre of a reclaimed area of about 200 acres, out of which 100 acres are being reserved for harbour purposes. The scheme makes ample provision for its future extension. Apparently the largest liners will be able to land passengers immediately alongside the railway station in the reclaimed area.

The existing trade of the port and the method of handling it will not be seriously interfered with. But new trade will be

handled on the reclamation by a very up-to-date system of railway sidings, electric cranes, etc. The development of the reclaimed area from the town planning point of view will also be on an up-to-date basis. It is expected that a modern sewage system and a system for the supply of pure water will be brought into being.

The Director of Town Planning, Madras, is now engaged in designing the new town which will grow up immediately adjacent to the wharves. A feature of the design is that all the area will be ultimately served by both metre and broad gauge lines, which will not be allowed to cross any point, nor will there be a single level crossing within the new town. There will be, it is stated, 24 lines in each gauge. The inconvenience frequently experienced by travellers at ports in the journey from ship to station will be obviated by means of electric lifts and a covered way, so that their luggage and other things may be immediately transported under cover direct from steamer to train. In addition to the railway connection to the passenger wharves, bridges are to be built for road and foot traffic from Cochin to the reclaimed area where the port will be constructed and from the port to Ernakulam. Up till now a sum of about Rs.100 lakhs has been spent, and yet a sum of about Rs.125 lakhs will have to be spent to complete the fourth stage. The cost of conversion of the metre gauge line into broad gauge will be separately met by the Cochin Durbar.

Burma

Foreign Trade of the Port of Rangoon.

The foreign trade of Burma, through the Port of Rangoon, in rice and bran totalled 3,107,232 tons during the period from January 1 to October 31st, 1931, as against 3,009,850 tons for the corresponding period of 1930.

Of these totals India took 1,255,974 tons in 1931 and 743,451 tons in 1930. The exports to the main foreign markets were as follows:—

	1930 Tons	1931 Tons
Straits Settlements and F.M.S. ...	333,813	275,288
China	663,712	151,990
Japan, Korea and Formosa	16,847	50
Netherland Indies	243,669	136,341
West Indies	96,773	69,556
United Kingdom	193,484	170,562
Europe	387,603	576,112
Egypt and Red Sea Ports	41,430	81,175
South Africa	12,688	11,378
Ceylon	287,248	209,555
Mauritius	23,975	23,385

The exports of bran included in the total were 216,822 tons in 1930 and 206,630 tons in 1931, out of which 145,946 tons and 137,198 tons respectively went to the United Kingdom.

From January 1 to October 31, 1931, the total export from Saigon, including local exports to Annam and Cochin China,



View of 24-ton Reinforced Concrete Pile being lifted by New Steel Sheer Legs at Madras.

Notes from Far Eastern Ports—continued

were 841,974 tons, against 971,563 tons in the same period of 1930.

Siam

Bangkok Harbour's Shipping.

During the month ending November 15, 1931, a total gross tonnage of 18,643 passed through the Port of Bangkok. These included 18 British, 18,365 tons; 28 Norwegian, 22,730 tons; 3 Japanese, 4,718 tons; two French, 689 tons; seven Dutch, 7,989 tons; and seven Danish, 13,986 tons.

Passengers that arrived from various places during the same period included 34 cabin and 153 deck from Singapore, 11 cabin and 201 deck from Hongkong, 33 cabin and 3,428 deck from Swatow, 2 cabin from Japan and 3 cabin from Java.

The largest ships in the harbour during the same period were the Danish m.s. "Selandia," 3,162 tons net, and m.s. "Lalania," 3,004 tons net.

Bangkok's Foreign Trade.

The total value of Siam's foreign trade with the United States of America through the Port of Bangkok during the month ending November 15, 1931, is 132,000 dollars imports and 12,000

dollars exports. The exports to Siam included the following: Cigarettes, 2,625 dollars; machinery, 26,000 dollars; electrical equipment, 12,000 dollars; automobiles, 5; canned fish, 3,000 lbs.; gasoline, 2,000 barrels; kerosene, 4,000 barrels; iron and steel, 5,000 dollars; canned milk, 160,000 lbs.

The total export of rice and rice produce from Bangkok for the period January 1 to October 31, 1931, were 1,014,481 tons, as compared with 900,044 tons in the same period in 1930, according to statistics just available.

The principal destinations were as follows:—

	1930 Tons	1931 Tons
Singapore	355,346	332,565
Hongkong	244,982	333,257
China	11,894	13,145
Japan and Formosa	104,704	77,133
Netherlands Indies	41,576	95,210
West Indies	30,529	52,965
Germany	11,784	40,001
United Kingdom	2,119	1,711
Other European Countries	14,148	21,747
Union of South Africa	2,581	3,120
Ceylon	9,253	20,284

£3,000,000 a Year to Run Liverpool Docks

WHAT it costs to run a port like Liverpool is detailed in the annual accounts of the Mersey Docks and Harbour Board, whose income for the year recently concluded amounted to just under £3,000,000. Rates and dues brought in £2,212,209; rents of property, £319,232; Dock Traffic Department, Mersey Cattle Wharf, floating cranes, coaling appliances at Liverpool and Birkenhead, etc., £315,897; warehouses, £116,463.

Expenditure under the different heads was as follows:—

Engineer's Department	£554,361
Harbour Master's Department	122,769
Dock Traffic Department, Mersey Cattle Wharf, floating cranes, coaling appliances, at Liverpool and Birkenhead	261,023
Police Expenses	123,078
General Charges	259,937
Parliamentary and Law Expenses	2,737
Rates and Taxes	70,610
Compensations for Accidents and Damages to Vessels, etc.	5,600
Insurance Premiums (Amounts paid to public companies)	2,836
National Insurance	14,611
Interest on loans	1,541,383

Here is a summary of items of expenditure from the unappropriated receipts account:—

Contribution towards the cost of the Liverpool—	
East Lancashire Road	£16,611
Loan to Liverpool Overhead Railway Co., towards New Station, Gladstone Dock	2,681
Dredging in river adjacent to dock entrances (proportion)	21,000
Alterations to Railway connections and signalling arrangements, Princes Dock	2,579
Providing a 45 tons weighing machine, etc., South East Canning Dock	2,401
Provision of Air Compressor Plant, etc.	1,517
Providing railway facilities in avenue, south yard, Stanley Dock warehouses	1,483
Alterations, etc., to sheds, Nelson and Bramley-Moore docks to meet customs requirements	1,049
Providing "Leyland" Motor Wagon, etc.	715
Providing roof over filled-in area, Lightbody Street	685
Alterations to sheds, etc., east side, West Waterloo Dock, and north side, Sandon Dock. Providing jiggers at shed, west side, Huskisson Dock, and sundry other works	2,142

Dredging the Bar of the River Mersey for the twelve months cost £102,900, whilst the expenditure incurred in surveying, lightships, buoys and landmarks, salvage plant, lifeboats, lighthouses and telegraph stations, steam tenders, removal of wrecks, official charges, etc., was £77,641.

Raising the Revetment at Taylor's Bank to the original height cost nearly £5,000.

Rates and dues received on vessels were:—

Dock tonnage and harbour rates	£1,440,259
Graving dock and gridiron rates	38,126
Dock Rent	25,120

Rates and dues received on goods were:—

Dock rates	£537,071
Town Dues	419,162
Total rates and dues received	£2,459,738

Over £500,000 were spent on general repairs and maintenance by the Engineer's Department, the analysis of this expenditure being as follows:—

	Liverpool £ s. d.	Birkenhead £ s. d.
Docks, Basins, Graving Docks, Gates, Bridges, Sheds, Streets, Electric Lighting, Gas and Water Service, &c.	167,717 1 3	49,037 17 3
Landing Stages and Approaches	20,725 13 10	3,829 4 10
Buildings, Offices, Yards, Petroleum Depots, &c., let on Rent, Police Stations, Customs Depots, &c.	6,648 0 1	1,033 19 8
Dock Yards, Workshops, Engines & Machinery Tools, Motor Vehicles, &c.	36,955 2 1	9,021 3 11
Dredging in River adjacent to Dock Entrances, &c.	£53,460 10 7	
Less proportion charged to Unappropriated Receipts Account	21,000 0 0	
	28,221 3 9	4,239 6 10
Damages done to Dock Works and Floating Plant	4,789 16 8	553 11 8
Dredging, Sluicing, &c.	61,234 7 11	5,504 15 1
Hydraulic Power	73,480 9 10	27,171 3 9
Sundry Works	3,228 0 3	1,084 15 8
	402,999 15 8	101,535 18 8

Floating cranes and cranes on quays at Liverpool and Birkenhead brought in £27,008; expenditure £31,705. Coaling appliances at Liverpool and Birkenhead brought in £61,669; expenditure £43,031. Weighing materials income £11,117; expenditure, £8,928. Railway at Birkenhead and Seacombe: tolls income, £1,465; expenditure, £13,076. Dock line of railway: tolls income, £1,957; expenditure, £10,104. Surveyors of Cargoes Department: income, £1,516; expenditure, £1,368. Chain and anchor testing works, Birkenhead: income, £3,674; expenditure, £3,067.

Turnover in Bremen City Harbours.

Turnover in the Institutes of the Bremer Lagerhaus Gesellschaft was as follows in the period from the 1st to the 15th October, 1931:—

Turnover in sea-borne traffic amounted to 95,502 tons (against 78,605 tons), chiefly grain, cotton, wool, iron, steel, timber, coffee, corkwood, flour, yarn, jute, hemp, pollard, oil cakes, oil cakemeal, fruit, rice, rice-waste, rubber, fodder, cocoa, stones, potatoes, wires, coal, coke, salt, spar, paper, clay, machine parts, peat moss, piece goods, cotton, wool, timber, iron, glass, metal goods and toys.

In inland shipping turnover amounted to 10,946 tons (against 7,495 tons), of which 1,378 tons copper, oil, paper, timber, rubber, flour, piece goods from vessel to vessel, 9,568 tons grain, pollard, oil cakemeal, glass, copper, fodder, flour, cotton, between vessel and quay.

In railway traffic 4,871 waggons with 56,012 tons were loaded and unloaded (against 5,376 waggons with 58,373 tons), chiefly machine parts, timber, copper, iron, steel, cement, stones, potatoes, tin sheets, wire, wires, salt, spar, peat moss, clay-ware, grain, cotton, wool, iron, steel, timber, corkwood, coffee, rice, rice-waste, yarn, hemp, lard, bacon, oil cakemeal, fodder, leather, jute.

On an average 1423 hands per diem were employed in the works of the Bremer Lagerhaus Gesellschaft.

Scottish Harbour Notes



Tayport Harbour. Owners: The London and North-Eastern Railway Company.

Suspension of Work on the New Cunard Liner.

GR^{EAT} consternation was caused in the West of Scotland when it became known that work was being suspended on the New Cunarder being built at Clydebank, and in this connection it is interesting to recall the work that was being undertaken by the Clyde Trust in deepening the river in anticipation of the launching of the new vessel. Owing to the enormous bulk of the giant ship special preparations were necessary to ensure her safe entry on the river and her subsequent passage to the Firth. In the first instance the river bed had to be widened opposite the yard of the builders at Clydebank, and ground to the extent of $5\frac{1}{2}$ acres had to be cut away and the river widened by about 100-ft. At the moment a dredging programme is being carried through between the shipyard and the mouth of the River Cart. Ample water had to be allowed for the accommodation of a vessel 1,018-ft. in length; while provision had also to be made for the vessel being taken into the fitting-out basin where again extra depth had to be provided.

Proposed Acquisition of Granton Harbour by Leith Dock Commission.

A proposal for the acquisition of Granton Harbour by Leith Dock Commission has again been brought forward, and it appears that preliminary enquiries in connection with the matter are now proceeding. Several times in the past negotiations have been entered upon; the last occasion being a year or two before the outbreak of the war, but agreement could not be reached in regard to price. "For many years," observed the *Scotsman*, dealing with this matter, "the fishing trade has been complaining about the inadequacy of the accommodation provided for them, and the general feeling in the community has been that the best solution of the problem of the industry would be the acquiring of Granton Harbour by the Dock Commission, and the provision there of thoroughly up-to-date facilities for the trade. Much would require to be done in order to give the fishing trade that opportunity to develop for which it has been longing. It is firmly believed that, if all the advantages of an up-to-date base were provided, the volume of trade would be greatly increased, and that soon Granton would be one of the most important centres of the industry on the whole of the East Coast. Certainly it has the advantage of a fine central situation."

It might be thought in some quarters that at the present time, when the call is for economy, such a project as the purchase of Granton Harbour would be inopportune. Those who know the disadvantages under which the fishing industry at the port has to be conducted, however, consider that the provision as early as possible of all the accommodation and equipment that is so badly needed would in the end prove the true economy. It is held that much trade that should naturally come to Leith and Granton goes elsewhere, but that it could be recovered if the cramping conditions were removed. At Newhaven (where the fish market is at present situated)

there are no railway facilities, but at Granton both railway companies lines run down to the harbour and it is remarked that that is where the fish market should be placed. There ought also (it is said) to be suitable provision for the dry-docking and repairing of the trawlers, and everything possible done to reduce costs.

Harbour Dues at Ayr and Troon.

At a recent meeting, Ayrshire County Council adopted a proposal agreeing to forward a memorial to the Secretary of State for Scotland with regard to the question of harbour dues at Ayr and Troon which affected the whole of the trade of that area. In this connection there has been advertised a proposal by the London, Midland and Scottish Railway Company to apply for a provisional order, and the County Council has decided to lodge objections to this order so that the matter might be kept open. The primary point is that the rates at Ayr and Troon (it is suggested) are to be regulated by the consideration of the cost of the maintenance of a group of harbours, which include not only Ayr, Troon and Largs, but also Kyle of Lochalsh, Bowling, Oban and Stranraer, and Ayr County Council feel that this would be a very adverse arrangement to the interests of Ayr and Troon, and the area served by these harbours. What Ayrshire County Council is suggesting—supported by the Town Councils of Ayr and Troon—is that there should be a fair charge made at Ayr and Troon to cover the costs of these burghs, and that they should get the advantages of their respective positions.

Inverness Harbour Improvement Scheme.

Matters relating to the concrete piling in connection with the Inverness Harbour £25,000 improvement and alteration scheme were discussed by the Local Harbour Trustees at a recent meeting. The failure of the piles (the contractors maintain) according to a report by the trustee's engineer was largely, if not entirely, due to the amount of clay dust adhering to the crushed stones, and the engineer agreed that the clay dust had contributed to the pile failures. The Trustees Works Committee recommended that the contractors should be offered stones taken from the River Ness, and, in the event of the contractors not considering these stones suitable, they should be authorised to get a quantity of stones elsewhere to enable them to go on with the contract meantime. It was ultimately remitted to the Works Committee to enquire into the present situation; to visit the harbour; and to instruct tests to be made immediately of the River Ness stones and the sand being used.

Loading and Unloading Facilities at Aberdeen Harbour.

Many of the business men of Aberdeen are contending that the city's progress as a port is being impeded by the lack of loading and unloading facilities at the local harbour. Last year they made an unsuccessful protest in this connection, and recently a memorial—subscribed to by about 20 of the most important firms in the city was presented to the Harbour Board.

Scottish Harbour Notes—continued

It states: "All the cranes at the harbour are inadequate, and the time is long past when new ones became necessary. Nothing has been done about this for years, and the work of the port has suffered accordingly. Modern cranes must be supplied without delay, and the charges reduced from 6s. 8d. to 5s. per hour." The matter has been remitted to the committee of the harbour board. The allocation of berths to long-distance trawlers is also causing trouble at the harbour, and a committee has been entrusted with the solution of what has become a big problem in the white fishing industry.

Widening of the Sill at Garvel Graving Dock, Greenock.

Widening of the sill at the Garvel Graving Dock at Greenock was discussed at the annual meeting of Greenock Harbour Associated Stockholders when (in answer to a question) a representative of the company on the Harbour Trust stated that the cost would be the same as that estimated for the deepening of the dock; between £26,000 and £27,000. Mr. Norman MacLeod (secretary) stated that the money was to be raised under the company's borrowing powers. The total cost would probably be over £30,000, but the difference would be recovered

from the Government, who were giving a grant. In a short statement, the secretary pointed out that the shipbuilding had gone down to practically nothing this year although the sugar industry had been kept busy. The repairs at present being carried through at the graving dock would mean that for a time they would be getting no ships there. That meant a loss of revenue so that shareholders could not look forward to maintaining the present dividend next year.

Application for Government Grant for Nairn Harbour.

At a recent meeting of Nairn Town Council a minute of the Harbour Committee with reference to making application to the Treasury for a grant to cover the additional cost of the Nairn Harbour works, etc., was approved. Provost Fletcher said he could make no statement so long as negotiations with Government departments were going on, as any statement he might make at the moment would not be in the interests of the town. Councillor High suggested that the essential particulars should be included in the minute, but Provost Fletcher replied that the Council did not know yet what the harbour was to cost and they had not decided what they were to spend.

The Development of Lighthouses

By D. ALAN STEVENSON, F.R.S.E., M.Inst.C.E.

Precis of a Paper read before the Royal Society of Arts on Wednesday, December 2nd, 1931

THE development of the modern lighthouse from the ancient fog beacon to the sea tower was described by Mr. D. Alan Stevenson, M.Inst.C.E., at a lecture given on Dec. 2nd to the Royal Society of Arts. Mr. Stevenson, who is of the fifth generation of the family of engineers connected with the Scottish Lighthouse Service since its establishment in 1786, showed a series of lantern slides, commencing with ancient Roman and early European lighthouses. He pointed out that early navigation was chiefly by day. It was not until 1770 that a beginning was made to get away from a crude form of illumination such as wood or coal fires, candles, or oil lamps with solid wicks. The inventions by Argand in 1782 of the circular wick and the glass chimney, which were of immense social importance, brought about a revolution in lighthouse engineering.

The lecturer traced the history of lighthouse towers from the four early tower on the Eddystone. Rudyard, he stated, designed in 1708 a wonderful tower on very sound scientific principles, as was shown by its existence on the Eddystone for 46 years.

Smeaton introduced improvements, and, in turn, Robert Stevenson, grandfather of Robert Louis Stevenson, designed a greatly improved sea tower on the Bell Rock, which incorporated the features now considered essential for such a structure. That was completed in 1810 and it is now the oldest existing sea tower.

The lecturer stated that the scope of lighthouses now included all assistance given to ships as to their position by means of sound and wireless waves. The navigation of ships in fog, when landmarks and lights are obscured, was, he stated the chief problem to which lighthouse authorities were giving their attention. This subject was important not only because of the outstanding interests of this country on the sea, but also because our coasts in particular were exposed to fog and every year a number of strandings took place from this cause. After describing what information there was available to a vessel in fog from charts and observations made by her own instruments, the lecturer pointed out that the problem was a different one for the warship with her skilled personnel and elaborate and expensive instruments, for the mercantile vessel with her smaller and busier staff, and for the fishing craft which could afford little on equipment for navigation. Small vessels, too, owing to their considerable motion and their lack of accommodation, could not operate with advantage many of the most modern navigational instruments. The seaman required all signals to be simple, quick and reliable, and there was no sign that the day was yet at hand when signals direct to his ear and eye could be dispensed with. In fog he was blinded, and then he had only his ear to depend on and his navigational instruments.

Air fog signals were increasing in numbers and powers, but the disadvantage of this form of signal was the effect of wind which retarded and elevated the sound waves, so that sometimes a powerful coastal signal could be heard at sea from a distance

of only 1½ miles against the wind. Mariners were warned by the Admiralty not to judge distances from the apparent loudness of these signals in fog, but their directions might be judged approximately. Therefore the air fog horn, despite its large cost of construction and upkeep, was a signal which gave assistance in a negative form. In recent years navigation authorities had been looking for some signal to give better protection to shipping. The lecturer described different forms of wireless which had come to stay as an essential aid to navigation. There was now nearing completion round the British shores a chain of 500-watt wireless beacons, and the advantages and objections were stated regarding this and other forms of wireless such as the revolving reflector beam and the revolving loop. The latter was developed by the R.A.F. at Orfordness with the object of avoiding the use of direction-finders which were heavy for aeroplanes. The leader cable and submarine signals were referred to also, and in regard to the latter it was remarked that responsible lighthouse authorities in the United States and Canada, which were countries with the largest experience both of wireless and of submarine signals, had expressed the opinion that submarine signals would in the future have no place in navigation. The lecturer remarked that the necessity for ships to instal special and expensive apparatus in order to get full use from submarine signals was against their adoption, and that such forms of signals, which could be used only by large vessels and from lightships, had grave disadvantages as signals for universal use.

The Talking Beacon, which had received the award of the Royal Society of Arts as the most recent invention of the greatest value for navigation, had been an unqualified success since its establishment at Cumbrae Lighthouse on the Clyde. Its operation showed that it combined the fullest advantages of all other forms of sea signals without any of the disadvantages of each.

Instantaneously, in speech and without calculation, it was the only system of navigation that afforded distances to vessels, to ocean liners as well as to fishing boats, whenever they heard the fog signals through the air. It also gave direction by wireless, at low cost to both Lighthouse Authority and to ship. Only simple wireless receivers were necessary to get full advantage of the system. It changed a fog signal into an instrument of precision, and prevented strandings of vessels from taking place along a considerable stretch of coast round the installation. The objection to all coastal fog horns that they were ineffective in adverse wind did not apply to the Talking Beacon, as this gave before distances were required the full advantages of low-powered wireless beacons in affording directions. From being as at present a purely negative form of assistance to shipping, an air fog signal became of positive and real assistance. With this increase in practical value and efficiency, the large sums of money spent in its construction and maintenance were turned to full advantage.

Italian Harbour Affairs

ACCORDING to statistics, which have just been published, among the chief items of goods imported at Italian ports, during the period from January 1st to October 30th, 1931, may be mentioned the following:

	Coal Tons	Cereals Tons	Lumber Tons	Cotton Tons
Genoa	2,202,961	863,807	92,815	97,048
Savona	1,030,867	821	55,038	407
Leghorn	568,366	82,624	9,485	1,214
Civitavecchia	479,591	54,016	31,363	—
Naples	568,380	384,256	87,929	4,872
Palermo	124,966	10,586	19,842	—
Catania	100,552	66,855	34,128	—
Trieste	339,756	89,412	4,227	33,069
Fiume	35,652	8,580	3,916	1,140
Venice	920,149	176,822	21,184	31,467
Ancona	238,761	39,414	8,974	48
Bari	83,329	65,792	8,597	—

As a whole, shipping at Italian ports has been, during the last part of 1931, very much the same as in the early part of the year. In general the decline in the volume of goods imported, which has been noticed at certain Italian ports, has been the result of the smaller imports of coal. In the course of the recent session of the general meeting of the Consorzio Autonomo del Porto di Genova, Marquis Negrotto Cambiaso, President of the Board, in his report on the development of shipping, during the period from January to October, 1931, stated that 8,313 ships had arrived and cleared representing 16,902,766 n.r.t., 4,855,495 tons of goods unloaded and 1,128,181 tons of goods shipped. These figures—he said—show that trade is still declining in respect to 1930, but if the above-mentioned items are compared with those for the first five months of 1931 it will be seen that matters have considerably improved:—

	May 31st, 1931 —8.89 per cent.	October 31st, 1931 —7.57 per cent.
Goods unloaded	—13.51	—5.58
“ loaded	+3.82	+2.21
Bunkers	—8.61	—6.68
Total Shipping		

It clearly appears, therefore, that there has been a considerable improvement, especially as far as exports are concerned. The percentage decline in exports for 1931 in respect to 1930 has been smaller than the percentage decline for imports; and if it is considered that the general decline of shipping which in 1930 reached 9.17 per cent. in respect to 1929, has dropped to 6.68 per cent., it is not exaggerating to expect—continued Marquis Negrotto Cambiaso—that the depression might come to an end. In connection with harbour improvements and enlargements, which are being carried out at Genoa, it should be noted that the Benito Mussolini Dock is being built in two different phases, the first part, including two piers of 400 metres in length by 130 metres in breadth, the quay between them and the breakwater sheltering the water in the Dock (800 metres in length), and the second part, including another portion of the breakwater, up to the mouth of the Polcevera, a protection mole and an additional pier, measuring 400 metres in length. Of the first part 800 metres of breakwater and two-thirds of the underwater structure of the second one are already completed. The quay has also been completed. Regarding the second part of the work, the breakwater, which when completed, will measure 1,050 metres in length, has 600 metres of rock bed and 550 metres of superstructure so far completed. The third pier has not been completed as yet. These works will be terminated in the course of the second half of 1933. The extension of the Galliera Mole by 400 metres has already been completed, and the construction of the red light on the head of the Mole is making good progress. The superstructure at the head of the Molo Vecchio, which is now at work removing the underwater portion. About two-thirds of the work of lengthening the eastern portion of the Ponte Andrea Doria has been completed. Marquis Negrotto Cambiaso concluded his report by referring to the purchase of a floating mechanical coal bunkering station, and the concession of the oil bunkering facilities in the port of Genoa to the Azienda Generale Italiana Petroli (A.G.I.P.). According to an article which Ing. Albertazzi, head of the Engineering Department of the Consorzio Autonomo del Porto di Genova, has published in the *Secolo XIX* of Genoa, it would appear that the forty electric coal elevators existing in that port have a capacity of 2,500 tons per hour, which means that it would be possible to handle in 300 eight-hour working days about double the amount of coal which is at present imported through the port of Genoa. There are 56 electric cranes in the port over about 1,700 metres of quayage, with an average of about 30 metres served by one crane. This average is considerably larger than that allowed for in the programme of fitting out the new Wilson Dock at Marseilles (cranes of 1,500 to 1,800 Kg.). He furthermore

stated that considerable progress is being made at Naples and Catania, where mechanical unloading facilities are increasing from day to day.

Vice-Admiral Fausto Gambardella has been appointed as head of the Provveditorato del Porto de Venezia, through the vacancy caused by the death of Admiral Roberto Andrioli Stagno. The development of trade at Venice has continued on the same lines during the month of November, 1931, when it reached a total of 206,008 tons with a decrease of 13 per cent. in respect to the corresponding month of 1930, and due chiefly to imports, while exports have shown a slight increase as is shown in the following figures:—

	Imports Tons	Exports Tons	Total Tons
November 1931	175,133	30,875	206,008
November 1930	206,462	29,969	236,431
Difference	—31,329	+906	—30,423

Imports have shown a decrease of 31,329 tons, that is to say 15 per cent., due to coal (14,200 tons); chemical fertilizers (4,500 tons); cereals (27,600 tons); cotton (3,000 tons), and other goods (2,029 tons), compensated to a certain extent by the imports of petrol which have shown an increase of 20,000 tons. As a whole shipping at Venice, during the first eleven months of 1931, has shown a decrease of 176,290 tons, that is to say 6.30 per cent. in respect to the corresponding period of 1930.

According to information received the Società An. Italiana Lavori Edili Marittimi at Palermo has been entrusted with the construction of a dock in the port of Reggio Calabria; the improvement of the ports of Sciacca, Licata, and Porto Empedocle; the extension of the breakwater in the port of Termini Imerese; the dredging works at minor Sicilian ports, etc.—besides the enlargement of the port of Palermo.

The question of harbour enlargements at Naples has again been taken up in several booklets, which have been compiled by Commendatore Ingegnere Luigi Greco, Head Engineer of the Civil Maritime Engineering, and Professor of Maritime Constructions at the Naples Naval High School. In the first book Prof. Greco has dealt with the new breakwater built at the entrance to the port of Naples, in order to ensure calm water in the inner part of the port. This breakwater measures 343 metres in length. In the project, which was prepared in 1919 the structure was to be built on the Inglesse system, but since this has not proved satisfactory in the course of the construction of the Granili breakwater, Prof. Greco has worked out a new type of construction. According to this project the rock bed was to reach a level of 11.50 metres under sea level instead of 10.50 metres, and the inter-structure was to consist of three cyclopic blocks weighing 416 tons each, and measuring 12 metres by 4 metres by 4.6 metres. The type of breakwater which has been adopted has been submitted to the calculations based on the theories of Prof. Ing. Paolo Cornaglia. The laying of the blocks of the inter-structure was completed on May 9th, 1931, and considerable progress has been made in the construction of the superstructure of the breakwater consisting of walls having a height of 3 metres over sea level on the inner side, and a height of 11.40 metres on the outer side.

No less interesting has been the report of Professor Greco on the new Maritime Passenger Station which is under construction at Naples, and summarised in another booklet. The first portion of the enlargement of the Molo Angioino, on which the Maritime Station has to be built, and measuring 192.50 metres in length, has practically been completed. However, in view of the continually growing tonnage of large liners it was decided to increase the length of the second part of the western part of the pier to 300 metres with a head having a breadth of 100 metres, the construction of 412 metres of quayage to connect the north-eastern extremity of the head with the end of the Molo Angioino at the point of connection with the Sacramento quay, and finally the enlargement of the Sacramento and Piliero quays by the junction of the end of the Molo Angioino with the southern end of the Immacolatella Vecchia. In this way it will be possible for large liners such as the “Berengaria” to anchor alongside the quay.

Finally, the third booklet of Prof. Greco deals with the organisation of the assistance granted to dockers in the port of Naples.

It should be noted that in Naples shipping quarters considerable importance is attached to the organisation of the port. Efforts are being made to keep the cost of unloading to the lowest level compared with other Mediterranean ports.

The harbour enlargements which it has been decided to carry out at Ancona, have already been started, and the opportunity of providing the harbour with powerful electric cranes is under consideration, particularly in view of the growing importance of the coal trade.

Notes of the Month.

The Port of Montevideo: Exemption from Moorage.

The National Administration of the Port of Montevideo, by decree of October 27th, 1931, has decided that steamships of the first class, moored at Portuguese wharves, discharging and loading simultaneously, shall not pay the moorage duty provided that the discharge is not delayed for reception of the cargo. This moorage duty was \$0.25 Uruguayan currency per lineal metre and per day.

Kiel Canal Traffic in October, 1931.

Traffic through the Kiel Canal during October compared with September and the corresponding month of last year was as follows: October, 1931, 4,414 vessels, 1,538,043 net registered tons; September, 1931, 4,324 vessels, 1,701,457 net registered tons; October, 1930, 4,749 vessels, 2,020,684 net registered tons. Thus, compared with the corresponding month of 1930, there was a decline of 7.5 per cent. in the number of vessels and of 23.89 per cent. in the tonnage capacity. Compared with September, while there was a small increase in the number of vessels, the tonnage capacity was 9.60 per cent. less.

Steam and motor vessels represented 90.05 per cent. of the total tonnage capacity and vessels with cargo 80.78 per cent.

Of the total of 4,414 vessels passing through the canal in October, 1,936 vessels aggregating 1,386,347 net registered tons were registered sea-going steamers comprising: 1,866 freight and passenger vessels aggregating 1,384,711 net registered tons, 68 steam tugs aggregating 1,496 net registered tons, 1 fishing vessel aggregating 140 net registered tons. Further, 2,332 sailing vessels of 122,539 net registered tons, 84 lighters and barges of 23,764 net registered tons, and 63 pleasure and Government vessels of 5,393 net registered tons.

The vessels were loaded as follows: 1 with passengers, 17 with cattle, 261 with coal, 45 with stone, 57 with iron, 56 with miscellaneous cargo, 257 with timber, 843 with grain, 14 with ore, 690 with other bulk goods, 1,013 with general cargo, 1,166 (26 per cent.) empty or in ballast.

Grain Handling Plant for the Danish Port of Esbjerg.

A contract for grain handling plant for the Danish port of Esbjerg has been given to a British firm of engineers. The order, which has been placed by the Jutland Co-operative Provender Supply Association of Copenhagen with Messrs. Henry Simon, Ltd., conveying engineers, Cheadle Heath, near Manchester, is for a travelling pneumatic grain discharging plant with a capacity of 120 tons per hour. The pneumatic plant will be mounted on a travelling tower which will span three lines of rail-track on the quay side, and will be provided with a cantilever conveyor gantry which will reach out across the quay to the granary building. "Simon" reciprocating vacuum pumps will be installed, driven by electric motors, to be supplied by the Danish company, and the equipment will include all the most modern appliances for receiving and delivering grain. There will be two suction pipes, provided with telescopic and flexible sections, and an automatic weigher for recording the quantity of grain handled by the plant.

Bremen's Seagoing Shipping Traffic in October, 1931.

After the recovery in seagoing shipping in September for Bremen account, a decrease once more took place in October, 685,792 net registered tons arrived, or approximately 35,000 net registered tons, equal to 5 per cent. less than in the previous month and approximately 158,000 net registered tons, equal to 19 per cent. less than in October, 1930. In the months January to October, 1931, arrivals were 7,181,574 net registered tons. The decrease compared with the same period 1930 amounts to approximately 484,000 net registered tons or 6 per cent.

In seaborne goods traffic for the five most important Weser ports 453,000 tons were imported and exported in October. This was an increase of 3,400 tons compared with the previous month, chiefly caused by seasonal cotton and grain arrivals, through which imports rose to 280,300 tons, or by 32,300 tons—12 per cent. Against this increase, however, was the less in exports by 26,900 tons or 23 per cent., to 172,900 tons, due to decrease in exports of potash, iron and coal. Traffic con-

siderably decreased compared with October, 1930, i.e., by 162,800 tons (more than one-fourth). Of this 140,500 tons fell on imports and 22,300 tons on exports. During the months from January to October, 1931, 4,246,400 tons were imported and exported. This is a decrease of 1,137,500 tons, or 21 per cent., compared with the same period in 1930. Of this 904,200 tons fell on importation (27 per cent. less) and 233,300 tons on exportation (12 per cent. less).

Lectures on Ports.

At the City of London College, Moorgate, Mr. A. T. Best, M.I.C.E., is to resume his lectures on "Ports and Docks," illustrated with lantern views, commencing on Thursday, January 21st; particulars can be obtained from the Secretary of the College. The syllabus of these lectures on "Ports and Docks" is as follows: Physical and commercial factors: functions to be fulfilled: types of port. Port as terminal or place of transshipment. Ownership and organisation. Construction of harbours, docks (wet, dry and floating), wharves, landing stages, moorings, etc. Dimensions of entrances and berths in relation to shipping: depths of docks and channels (natural and dredged), tidal data. Handling and storing (a) general cargo and (b) special cargoes. Economics: costs and revenues: obsolescence of works. Liabilities: damage: surveys, etc. Examples of ports: Works of reference.

United Kingdom Shipping.

The total tonnage of ships which entered and left United Kingdom ports with cargoes or ballast for the twelve months ended October, 1931, was 340,934,765 net register tons compared with 366,391,575 net register tons for the previous twelve months—a decrease of 6.9 per cent.

The figures for the principal ports were:—

	1930	1931	Percentage of total United Kingdom	Decrease per cent
London	58,333,377	55,766,100	16.4	4.4
Liverpool	34,592,746	31,684,769	9.3	8.4
Southampton	25,728,655	24,642,897	7.2	4.2
Hull	12,022,877	11,182,041	3.3	7.0

London's Shipping.

During the week ended November 27th 945 vessels, representing 936,223 net registered tons, used the Port of London; 540 vessels (758,523 net registered tons) were to and from Colonial and foreign ports and 405 vessels (177,700 net registered tons) were engaged in coastwise traffic.

* * * *

During the week ended December 4th 866 vessels, representing 951,974 net registered tons, used the Port of London; 524 vessels (757,958 net registered tons) were to and from Colonial and foreign ports and 342 vessels (194,016 net registered tons) were engaged in coastwise traffic.

* * * *

During the week ended December 11th 1,097 vessels, representing 1,016,334 net registered tons, used the Port of London; 517 vessels (813,420 net registered tons) were to and from Colonial and foreign ports and 580 vessels (202,914 net registered tons) were engaged in coastwise traffic.

* * * *

During the week ended December 18th, 899 vessels representing 969,663 net register tons, used the Port of London. 492 vessels (789,475 net register tons) were to and from Colonial and Foreign Ports, and 407 vessels (180,188 net register tons) were engaged in coastwise traffic.

* * * *

During the six days ended December 24th, 821 vessels, representing 883,823 net register tons, used the Port of London. 439 vessels (711,239 net register tons) were to and from Colonial and Foreign Ports, and 382 vessels (172,584 net register tons) were engaged in coastwise traffic. It should be noted that this return does not include arrivals and departures of vessels on Christmas Day.

More Motors Exported.

The export of British motor-cars from the Port of London continues to be a bright feature in trade. The s.s. "Tainui," recently loaded in the King George V. Dock 112 cars for New Zealand. By arrangement with the Empire Marketing Board each car bears a label denoting that it is of British manufacture.

Tilbury Passenger Landing Stage.

Twenty-two vessels, totalling 188,714 gross registered tons, used the Tilbury passenger landing stage during the month of November. Altogether 2,300 passengers were embarked or disembarked at the stage, in addition to baggage and mails.

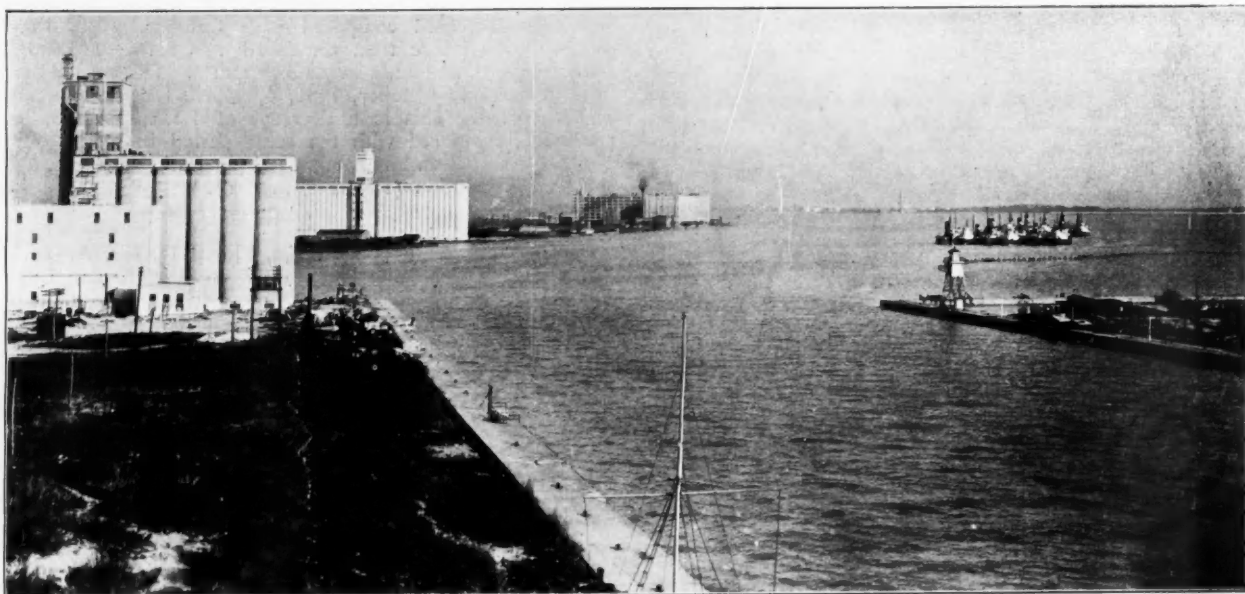
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Toronto Harbour



A View of part of the Water-front.

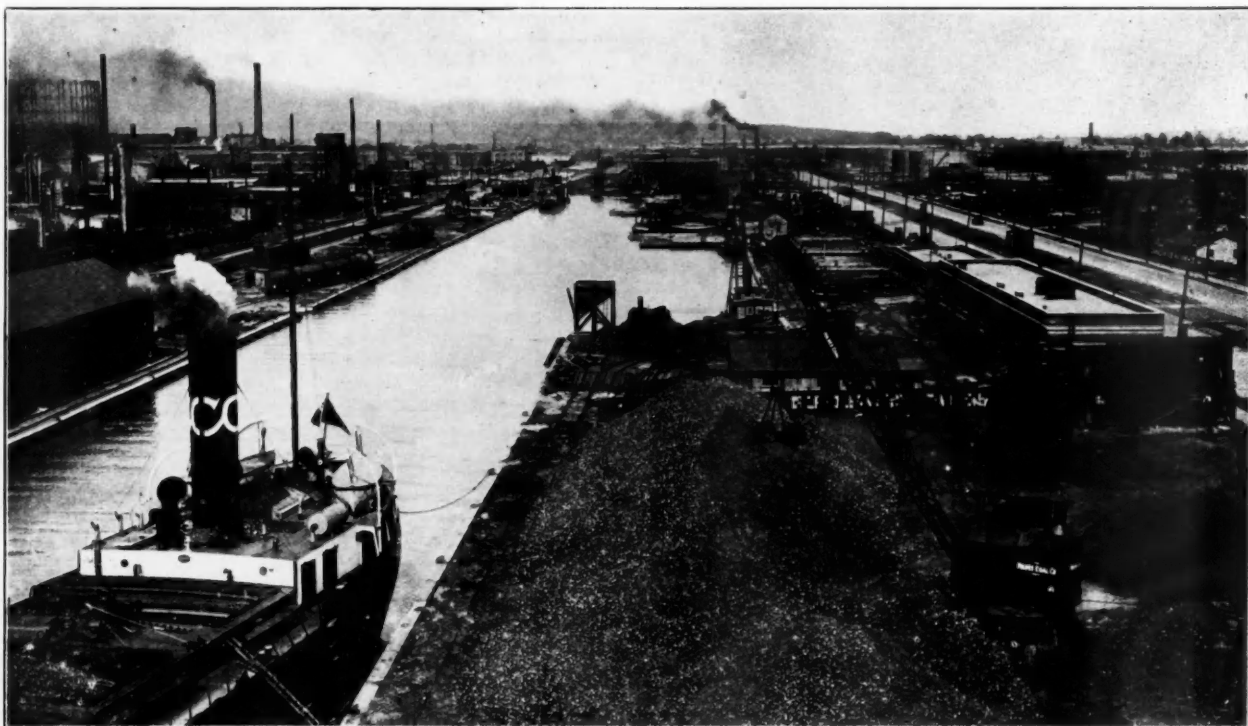
THE first commercial shipment, consisting of trade goods and supplies, to what is now the Port of Toronto was made by a French armed vessel of about 50 tons in 1749, and was consigned to the Keeper of "Fort Rouille," a French trading post, better known as the Fort at Toronto. The fort was destroyed by fire in 1759 and no further shipments were made until 1793, when Governor Simcoe selected the north shore of Toronto Bay as the site of the Capital of the new Province of Upper Canada.

It was in this year that water transportation actually commenced at Toronto. There were no highways and no railways; water transportation was the sole means of communication with the outside world and upon it depended the very existence of the new Capital.

As the town grew shipments increased; the merchant marine from a single vessel in 1800 steadily grew in number and size. Owing to lack of competition the harbour and wharves were allowed to get into a state of decay, as a result of which waterborne traffic declined rapidly; to overcome this a Harbour Trust was appointed in 1850 to take over the management and improvement of the Harbour, but the City and private individuals still retained possession of the waterlots and the lands abutting thereon. The year 1852 marked the coming of the railways to which the bulk of the traffic soon passed;

year by year the railways increased their revenue freight into and out of Toronto, while waterborne traffic practically remained at a standstill. As the time went by, canals were built connecting Lake Ontario with the Upper Lakes and also with the sea; steam took the place of sails; the old wooden vessels were replaced by steel, but no changes were made in the Harbour or the docks, wharves and slips which were entirely inadequate to meet the requirements of even the small vessels which frequented the Harbour. Sixty years of trial proved conclusively the impossibility of redeeming the waterborne trade of Toronto unless the Harbour, the waterlots and the land abutting thereon were placed under a single management. As a result "The Toronto Harbour Commissioners' Act, 1911," was passed. This Act provided for the appointment of a new Harbour Board with very wide powers; under their direction the Harbour Improvements were planned and have been carried out.

The work of the Commissioners is now bearing fruit; Toronto has a Harbour second to none on the Great Lakes with accommodation for the vessels ranging from 5,000 tons to 15,000 tons now plying on the Upper Lakes, which now pass through to Lake Ontario and Toronto since the opening of the Welland Ship Canal, and it is safe to say that these large vessels will, in a short time, take the place



A View of Keating's Channel.

Toronto Harbour—continued

of many of the ships hitherto navigating Lake Ontario, the capacity of which is limited to very small tonnage by the depth of the St. Lawrence Canals.

The Harbour Commissioners and the City of Toronto own and control over 97 per cent. of the waterfront of the City.

Two industrial areas aggregating upwards of 1,000 acres of reclaimed land have been created out of waterlots which were non-revenue producing in 1915. These areas have direct access to rail and water transportation and are served by more than 20 miles of Commissioners' railway tracks; there is perfect co-ordination between railway, water and highway transportation and free inter-switching with all railways, present and future, entering Toronto.

The total length of berthing space exceeds 34,000 lineal feet. Transit Shed storage floor space is 177,500 square feet. Dry storage warehouse floor space totals 750,000 square feet. Cold storage warehouse floor space totals 250,000 square feet. Elevator capacity, 2,750,000 bushels.

Sixty-four firms have already located in the Harbour Industrial Areas and have invested upwards of \$32,000,000 in land, buildings and equipment.

The demand for industrial lands is steadily increasing. Thirty-two of the sixty-four firms have located on Harbour lands since December, 1926. This rapid development of the industrial areas is clearly indicated by the assessed values of the occupied Harbour properties, the reclamation of which was commenced in 1914.

Year.	Assessed Value.	Taxes.
1912	\$1,976,804	\$36,551
1926	5,943,480	175,927
1927	7,324,389	232,915
1928	12,478,373	393,068
1929	15,922,490	506,335

The total of the taxes already received from these properties added to those to be collected on the 1929 assessment amounts approximately to \$3,000,000.

The commercial business of Toronto Harbour, for so many years at a standstill, has kept pace with the industrial development and is setting a new record each year as may be seen by the following table of commodity tonnage, which commencing in 1912, the first year in office of the present Board of Harbour Commissioners, shows little difference until 1926, when a new pace was set and the trade of the Harbour practically doubled in four years.

COMMODITY TONNAGE TABLE.

Year.	Tonnage.	Year.	Tonnage.
1912	343,608	1926	490,310
1920	378,626	1927	613,408
1921	248,363	1928	744,819
1924	365,525	1929	959,234
1925	476,959		

This marked increase in commercial shipments by water is due entirely to the improved conditions and facilities offered by Toronto Harbour, and in this connection, it is worthy of note that a very large proportion of it is attributable to goods shipped to and from new industries located on Harbour lands.

The quantity of coal shipped by water is also steadily growing larger. The shipments of 1929 were the greatest on record, 66,000 tons alone being shipped direct from Swansea, Wales, and delivered at Toronto Harbour without change of bottom.

The quantity of coal in tons of 2,000-lbs. imported by vessel during the years of 1927, 1928, 1929, is as follows:—

Classification.	1927.	1928.	1929.
Bituminous	*121,136	102,259	98,968
Am. Anthracite	4,616	2,850	2,502
Coke	—	22,402	23,107
Welsh Anthracite	10,494	22,588	66,722
Total	136,246	150,099	191,299

* Includes Coke.

Another important European shipment was a cargo of peanut oil (approximately 500,000 imperial gallons) which was shipped direct from Hamburg, Germany, to Toronto Harbour in the oil tanker "John Irwin."

The opening of the Welland Ship Canal, combined with the facilities offered by Toronto Harbour for vessels of deep draught and heavy tonnage capacity will bring many of the Upper Lake vessels to Toronto and it is safe to predict that in the very near future the foot of the Great Lakes Navigation will have passed from Lake Erie to Toronto, the only port on Lake Ontario with accommodation for the largest Upper Lake Vessels.



View of the Harbour Front, Toronto.

Toronto Harbour—continued



Site of Cherry Street, 1930.

Irish Harbour Matters

Dublin

New Liverpool-Dublin Shipping Service.

A NEW company to be called the Emerald Star Shipping Co. is being formed for a livestock and merchandise service between Dublin and Liverpool. At a recent meeting of the Dublin Port and Docks Board an application for berthage was made on behalf of the promoters by Mr. J. F. Lalor, solicitor. The Board referred the matter to Capt. Webb, the Harbour Master.

Mr. Lalor has stated in an interview that two boats have been acquired, and it is the intention to run two services daily—Liverpool and Dublin—each way. It is hoped to start in the New Year.

Sligo

Progress of Sligo Port.

Mr. H. Campbell Perry, who has been re-elected chairman for the eighth year in succession, stated at the annual meeting of the Sligo Harbour Board that the figures for 1931 to date had not alone maintained the record for 1930, but showed a considerable increase. One of the most important works done during the year was a complete survey of the harbour at a cost of £600. Their efforts to meet the modern tendency for overseas vessels to become longer and larger was repaid that week when they had discharging at the deep water berth, the new Norwegian steamer, "Efordheim," from the River Plate with a cargo of 5,941 tons of maize.

The total revenue to November 30th, 1931, was £12,869, an increase of £1,738 over 1930. Twenty-one overseas vessels arrived at the port, against 18 in 1930.

Limerick

Tenders for Limerick Dock Improvements.

The House Committee of Limerick Harbour Commissioners have been considering a report from their engineer, Mr. T. O'Sullivan, on tenders submitted for carrying out the scheme for dock extension. The lowest tender received was £30,000 higher than the engineer's estimate of £119,000. In the circumstances the Committee decided not to recommend the Board to accept any tender, but directed the engineer to communicate with the firm whose tender was the lowest with a view to their reducing it.

The tenders submitted were: Messrs. A. E. Fare and Co., Westminster, £176,203; Messrs. J. G. Thompson and Sons,

South Shields, £193,368; Messrs. T. J. Moran and Co., Dublin, £168,963; Messrs. Thornbury Bros., Belfast, £149,873.

The Secretary, Mr. McNeice, said that the estimate as submitted to the department was £119,000, with £12,000 for contingencies.

Cork

Haulbowline Oil Tank Installation.

The provision of further storage at the oil tank installation at Haulbowline was the subject of discussion at a recent meeting of the Cork Harbour Board. This arose out of a report by the general manager on a visit of the Commissioners to Haulbowline, when Mr. J. H. Varley, the installation manager, outlined the development of Haulbowline in recent months and stated that the demand for space already had exceeded expectations. The Haulbowline installation, he said, was ideally situated for the distribution of oil to other ports, but the company found themselves restricted as regards distribution in the Free State because of their isolated position at Haulbowline.

They were anxious, therefore, to provide a storage installation on the mainland, preferably within the railway company's boundaries, consisting of six tanks, each holding about 30 tons, which would be fed by a pipeline from the island. That would enable them to distribute the oil throughout Ireland by rail and road tank wagons. The landlord had, however, refused their application for a site on the ground that it would affect the amenities of the district, and the railway company had informed them that they were prohibited by the Railways Act of 1884 from using the land for anything but railway purposes.

In seeking the co-operation of the Harbour Board in the matter Mr. Varley suggested that possibly the landlord's objection might be overcome if the tanks were built underground, but if not, that the interested parties should jointly approach the Free State Minister for Industry and Commerce with a view to getting the restrictive clause modified.

The report was referred to the Law and Finance Committee for consideration.

Mr. Richard Wallace, chairman of the Cork Harbour Board, in an interview, stated that if the suggestion could be adopted, the cost of distribution and consequently the price of petrol would be greatly reduced in the Free State.

Mr. Wallace added that, in view of the facilities offered at Haulbowline there was a distinct possibility that in future the cross-Channel boats from Cork would re-fuel there instead of going to England as at present.

(Continued overleaf)

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Irish Harbour Matters—continued



The Port of Dublin: The River Liffey, the North Quay Extension and the Alexandra Basin.

Belfast

The Year in Belfast.

Although the complete returns for the year are not yet available, the tonnage figures for the port of Belfast are very satisfactory, considering the general depression in trade and industry. There seems every likelihood that the tonnage cleared from the port during the year will eclipse that of 1920. The net tonnage cleared up to the 12th December reached the figures of 3,644,528, representing an increase of

82,120 tons over the corresponding period of the previous year.

The goods traffic for the year also compared very favourably with that for 1920, the total imports and exports being 2,945,684 tons for the eleven months as compared with 2,972,416 tons for the same period in 1920, a decrease of 26,732 tons, or less than one per cent.

Good progress is being made with the construction of the new dock and turning basin on the Co. Antrim side of the river, together with the contingent dredging and reclamation.

Launch of the Suction Hopper Dredger "Robert Hughes"

MESSRS. WM. SIMONS AND CO., LTD., Renfrew, launched recently the Suction Hopper Dredger "Robert Hughes," which they have constructed to the order of the Crown Agents for the Colonies, under the direction of Messrs. Coode, Wilson, Mitchell and Vaughan-Lee, for service in Nigeria. The hull and machinery are built to Lloyd's Highest Class, 100 A.1. The vessel is fitted with two sets of triple expansion engines and steam is supplied by three cylindrical multitubular boilers arranged for burning coal under Howden's System of forced draught.

The dredging outfit consists of triple expansion enclosed forced lubrication engines, fitted between two cast steel dredging pumps, each of ample capacity for full duty and arranged so that one pump may be overhauled while the other is at work.

Three separate and distinct forms of outboard dredging equipment are provided, viz.:-

- (1) A plain suction nozzle, universally jointed, at lower end of suction pipe, for general bar service.
- (2) A suction frame fitted with a powerful rotary cutter driven through machine-cut steel gearing by a compound condensing engine fitted on the suction frame.
- (3) A drag suction nozzle of the flexible type arranged so that the vessel may take her load when steaming free in a fairly rough seaway.

The vessel has a capacity of dredging and discharging 2,500 tons of spoil per hour into her own hopper or into barges moored alongside, and in addition to the main hopper discharge valves of the cylindrical type, which discharge through the bottom, the hopper has been arranged with a system of pipes and doors so that the load may be discharged through a pipe line for reclamation purposes.

All pipe hoists and valves are operated by powerful hydraulic rams and the controls for all machinery including the propel-

ling machinery are led to an operating house placed on the bridge.

The engine room outfit includes independent condensing plant, automatic feed pumps, bilge pumps, service pumps, feed heater, filter and evaporator.

A donkey boiler and an auxiliary condenser with pumping plant complete are provided for harbour service and an outfit of machine tools for dealing with minor repairs.

The mooring arrangements are on a very comprehensive scale and consist of two separate anchor windlasses, and two automatic winches on the forecastle, three automatic winches and two capstans on the poop, and four capstans on the main deck.

The captain, engineers and officers are accommodated on the superstructure deck, in spacious cabins, specially ventilated for tropical conditions.

The crew is berthed under the main deck forward in large and well-ventilated spaces.

The vessel is fitted with a complete electric lighting installation throughout.

The "Robert Hughes" embodies in her design and construction many improvements in detail suggested by the experience obtained in the actual working of suction dredgers previously constructed by the builders presently employed at Lagos.

The christening ceremony was performed by Mrs. Hughes, wife of Captain R. H. W. Hughes, C.B., C.S.I., C.M.G., D.S.O., R.D., R.N.R., formerly Director of the Nigerian Marine at Lagos. Amongst those present at the launch were: Captain Hughes, Mrs. Hughes, Dr. and Mrs. Connal, Mr. H. Horsburgh, A.M.Inst.C.E., Representative of The Crown Agents for the Colonies; Mr. A. T. Coode, of Messrs. Coode, Wilson, Mitchell and Vaughan-Lee, Consulting Engineers; Mr. J. Sullivan, Major Brown, Chairman, Wm. Simons and Co., Ltd., Mr. H. Gallacher, Managing Director; and other directors of the company.

Dock & Harbour Authority
Feb 1932

PORT OF MONTEVIDEO.

UNDER THE JURISDICTION OF THE NATIONAL ADMINISTRATION OF THE PORT OF MONTEVIDEO.

